Biological Assessment

SR-241/SR-91 Express Lanes Connector Project

Orange and Riverside Counties

12-ORA-241 PM 36.1/39.1

12-ORA-91 PM 14.7/18.9

08-RIV-91 PM 0.0/1.5

EA No. 12-0K9700

Project No. 1200020097

FWS File Number _____

April 2016

Caltrans

CALIFORNIA DEPARTMENT OF TRANSPORTATION

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April 2016

STATE OF CALIFORNIA
Department of Transportation
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service

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Summary of Findings, Conclusions, and Determinations

California Department of Transportation (Caltrans) District 12, in cooperation with the Foothill/Eastern Transportation Corridor Agency (F/ETCA) proposes the State Route 241/State Route 91 (SR-241/SR-91) Express Lanes Connector Project (Proposed Project) to construct a median-to-median connector between SR-241 and the tolled lanes in the median of SR-91 (SR-91 Express Lanes). SR-241 is a tolled facility, starting at the Oso Parkway interchange, in south Orange County, to its terminus at SR-91. The SR-91 Express Lanes is a two-lane tolled facility located within the median of SR-91, from State Route 55 (SR-55), to the Orange/Riverside County line (east of the SR-241 interchange). The existing interchange connects all lanes of the northbound and southbound SR-241 to non-tolled, general purpose lanes of eastbound and westbound SR-91. There is currently no direct connection between the SR-241 and the SR-91 Express Lanes.

The Proposed Project, located at the junction of SR-241 and SR-91 and in the cities of Anaheim, Yorba Linda, and Corona and the counties of Orange and Riverside, would provide improved access between SR-241 and SR-91 and is proposed to be a tolled facility. The proposed median-to-median connector project encompasses 12-ORA-241 (Post Mile [PM] 36.1/39.1), 12-ORA-91 (PM 14.7/18.9), and 08 RIV-91 (PM 0.0/1.5) for a length of approximately 8.7 miles (mi).

Improvements for the connector are limited to 5.9 mi in the cities of Anaheim and Yorba Linda from south of the Windy Ridge Wildlife Undercrossing on SR-241 to Coal Canyon Undercrossing on SR-91. The remaining 2.8 mi of the Proposed Project is limited to FasTrak signage improvements (advance signage) in the cities of Anaheim (1.2 mi total), Yorba Linda (0.1 mi), and Corona (1.5 mi), with exact placement pending the Final Design process. The Proposed Project is mostly within existing Caltrans right-of-way, with one partial acquisition adjacent to eastbound SR-91. Construction access and staging areas would occur within existing Caltrans right-of-way.

The proposed median-to-median connector is a later phase of the Eastern Transportation Corridor (ETC) project, previously approved in 1994. It was originally evaluated as a SR-241/SR-91 high-occupancy vehicle (HOV) direct connector in the 1991 ETC Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), the 1992 ETC Final EIR, and the 1994 ETC Final EIS (all of which studied a broader Project Area with improvements on State Route 133, SR-241, and

State Route 261). The Systems Management Concept (SMC) for the ETC projected that each Build Alternative would be staged, incorporating general purpose traffic and eventually HOV lanes, to meet the forecasted demand. Under the SMC, ETC construction would be completed in one stage, with three or more phases.

To implement this later phase of the ETC, a Supplemental Draft EIR/EIS is being prepared to focus on the eastern portion of the original project and to address changes to environmental conditions and regulatory requirements. Various alternatives were studied in the 1991 ETC Draft EIR/EIS, the 1992 ETC Final EIR, and the 1994 ETC Final EIS; however, the Supplemental Draft EIR/EIS will include a No Build and only one Build Alternative for the median-to-median connector for the following reasons:

- There are limited locations for a median-to-median connector between SR-241 and SR-91.
- The median-to-median connector is a component of a previously approved project and alternative selected during a 1992 EIR Certification and 1994 Record of Decision (ROD).
- Various alternatives were studied for the previously approved project, which required consideration of a reasonable range of alternatives.
- The Supplemental Draft EIR/EIS addresses changes to environmental conditions and regulatory requirements but not changes to the previously approved project as a whole.

The Natural Environment Study (NES) was developed to support the Supplemental EIR/EIS for the Proposed Project. Because the conditions of biological resources are dynamic (i.e., location of special-status species and quality of habitat may change within the next several years), the impact assessment may need to be revised as more current annual data are obtained. The results presented in the NES and this Biological Assessment (BA) are based on literature searches and biological resource surveys conducted in 2011, 2013, 2014, and 2015, in addition to surveys conducted for other projects in portions of the Biological Study Area (BSA) in 2001 and 2003.

In 2011, reconnaissance-level biological resource surveys, focused plant and wildlife surveys, and vegetation mapping were performed to document the existing conditions of biological resources within the BSA. The BSA included areas of undeveloped land within Caltrans right-of-way that are dominated by ruderal and ornamental vegetation.

In 2013, reconnaissance-level biological resource surveys and the late season focused plant surveys were performed to determine if biological conditions were consistent with the 2011 findings and document any additional plant resources observed.

In 2014, the early season focused plant survey was performed to complete a full season plant survey.

In 2015, an early season focused plant survey and a reconnaissance survey were conducted on the portion of the County of Orange parcel within the Project Area. In addition, mapping and resource impacts for this parcel were evaluated based on a combination of findings from previous biological resource surveys for other projects and analysis of aerial photography (Bing Maps). This area is located within the Natural Community Conservation Plan and the Habitat Conservation (NCCP/HCP) Plan Area and is, therefore, covered under the "take" authorization issued to the Transportation Corridor Agencies (TCA) and other participants in the NCCP/HCP.

With the exception of coastal California gnatcatcher (CAGN), no listed species were observed during the course of the studies.

Federal Section 7 consultation between Caltrans and the United States Fish and Wildlife Service (USFWS) will be necessary to consider potential impacts to thread-leaved brodiaea, southwestern willow flycatcher, least Bell's vireo, CAGN, and USFWS-designated critical habitats for Braunton's milk-vetch, CAGN, and Santa Ana sucker within or adjacent to the BSA. Avoidance, minimization, and/or mitigation measures described in the NES are acknowledged in this BA and expanded upon to justify the following findings regarding those six listed species and three areas of designated critical habitat. In addition, no effect findings have been made for three species due to their absence in the study area.

Listed Species:

- Thread-leaved brodiaea — May affect, not likely to adversely affect
- Southwestern willow flycatcher — May affect, not likely to adversely affect
- Least Bell's vireo — May affect, not likely to adversely affect
- Coastal California gnatcatcher — May affect, likely to adversely affect
- Santa Ana sucker — May affect, not likely to adversely affect
- Braunton's milk-vetch — May affect, not likely to adversely affect

Designated Critical Habitat:

- Designated critical habitat for Braunton's milk-vetch — May affect, not likely to adversely affect
- Designated critical habitat for Coastal California gnatcatcher — May affect, not likely to adversely affect
- Designated critical habitat for Santa Ana sucker — May affect, not likely to adversely affect

No Effect Findings:

- San Fernando spineflower — No effect
- Munz's onion — No effect
- Western yellow-billed cuckoo — No effect

Within the NCCP/HCP Plan Area, there would be permanent and temporary impacts to approximately 47.35 acres (ac) of potential CAGN habitat known to support one pair of CAGN. Approximately 9.14 ac of permanent and temporary impacts to designated CAGN critical habitat would occur outside the NCCP/HCP Plan Area, 6.33 ac of which is developed. Incidental take would be permitted for impacts on habitat supporting up to three pairs of CAGN. Mitigation for the CAGN impacts that were not previously considered can be accomplished within the approximately 15 ac of coastal sage scrub and cactus scrub mitigation land available at the Strawberry Farms habitat restoration area in the City of Irvine.

Initiation of formal Section 7 consultation will serve to replace the existing Biological Opinion (USFWS 1994; No. 1-6-94-F-17; Appendix D) for the Proposed Project.

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List of Abbreviated Terms

ac	acre
amsl	above mean sea level
APN	Assessor's Parcel Number
BA	Biological Assessment
BMPs	Best Management Practices
BSA	Biological Study Area
CAGN	coastal California gnatcatcher
Caltrans	California Department of Transportation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIP	Corridor Improvement Project
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNPSEI	California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California
County	County of Orange
CRPR	California Rare Plant Rank
CSS	coastal sage scrub
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Environmentally Sensitive Area
ETC	Eastern Transportation Corridor
Express Lanes	tolled freeway lanes
F/ETCA	Foothill/Eastern Transportation Corridor Agencies
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
ft	foot/feet
HCP	Habitat Conservation Plan
HOV	high-occupancy vehicle
I-5	Interstate 5
I-15	Interstate 15
IPaC	USFWS Information, Planning, and Conservation
LSA	LSA Associates, Inc.
mi	mile(s)
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NES	Natural Environment Study
No.	Number
OCTA	Orange County Transportation Authority
PM	Post Mile
RCTC	Riverside County Transportation Commission

ROD	Record of Decision
SMC	Systems Management Concept
SR-133	State Route 133
SR-55	State Route 55
SR-91	State Route 91
SR-241	State Route 241
SR-261	State Route 261
SSC	California Species of Special Concern
TCA	Transportation Corridor Agencies
U.S.	United States
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WR-MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

Chapter 1. Introduction

The purpose of this biological assessment (BA) is to provide technical information and to review the State Route 241 (SR-241)/State Route 91 (SR-91) Express Lanes Connector Project (Proposed Project) in sufficient detail to determine to what extent the Proposed Project may affect threatened, endangered, or proposed species. Also, because the Proposed Project extends farther east than proposed for coverage by the original Biological Opinion, this BA will serve as the basis for initiation of formal Section 7 consultation with the United States Fish and Wildlife Service (USFWS). The BA is prepared in accordance with legal requirements found in Section 7 (a)(2) of the Endangered Species Act (16 United States Code [USC] 1536(c)) and with Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans) regulation, policy, and guidance. This document presents technical information upon which later decisions regarding project impacts are developed.

Caltrans District 12, in cooperation with the Foothill Eastern Transportation Corridor Agencies (F/ETCA) proposes the Proposed Project to construct a median-to-median connector between SR-241 and the tolled lanes in the median of SR-91 (SR-91 Express Lanes). The existing interchange connects all lanes of the northbound and southbound SR-241 to the non-tolled, general purpose lanes of eastbound and westbound SR-91. There is currently no direct connection between the SR-241 and the SR-91 Express Lanes.

Improvements for the connector are limited to 5.9 miles (mi) in the cities of Anaheim and Yorba Linda from south of the Windy Ridge Wildlife Undercrossing on SR-241 to Coal Canyon Undercrossing on SR-91. The remaining 2.8 mi of the Proposed Project is limited to FasTrak signage improvements (advance signage) in the cities of Anaheim (1.2 mi total), Yorba Linda (0.1 mi), and Corona (1.5 mi), with exact placement pending the Final Design process. The Proposed Project is mostly within existing Caltrans right-of-way, with one partial acquisition adjacent to eastbound SR-91. Construction access and staging areas would occur within existing Caltrans right-of-way.

The proposed median-to-median connector is a later phase of the Eastern Transportation Corridor (ETC) project, previously approved in 1994. It was originally evaluated as a SR-241/SR-91 high-occupancy vehicle (HOV) direct connector in the 1991 ETC Draft EIR/EIS, the 1992 ETC Final EIR, and the 1994 ETC Final EIS (all

of which studied a broader Project Area with improvements on State Route 133 [SR-133], SR-241, and State Route 261 [SR-261]). The Systems Management Concept (SMC) for the ETC projected that each Build Alternative would be staged, incorporating general purpose traffic and eventually HOV lanes, to meet the forecasted demand. Under the SMC, ETC construction would be completed in one stage, with three or more phases.

1.1. Project History

1.1.1. Project Purpose

In addition to the originally intended objectives, changed circumstances at the junction of SR-241 and SR-91 have led to the following updated objectives for the Proposed Project:

- Implement the buildout of the ETC, as approved in 1994;
- Attain compatibility with the SR-91 mainline and *Express Lanes*;
- Improve traffic flow by minimizing queue jumping on northbound SR-241 at the westbound SR-91 general purpose lane connector and at the eastbound SR-91 general purpose lane connector;
- Help achieve the Regional Mobility Plan goals of reducing emissions from transportation sources by improving movement in congested areas along the SR-241 and SR-91; and
- Enhance the efficiency of the tolled system, thereby reducing congestion on the non-tolled system of the SR-91.

1.1.2. Project Need

There is a need for improved access between SR-241 and SR-91. Roadway deficiencies are described below:

- Demand exceeds capacity on the northbound SR-241 connector to eastbound SR-91 and on the westbound SR-91 connector to southbound SR-241.
- Northbound vehicles on SR-241 cannot access the eastbound SR-91 Express Lanes. Access from northbound SR-241 to eastbound SR-91 is provided by means of a two-lane connector that merges with the SR-91 general purpose lanes.
- Westbound SR-91 Express Lanes motorists cannot access southbound SR-241. Access from westbound SR-91 to southbound SR-241 is provided by means of a two-lane connector that diverges from the general purpose lanes. As a result,

weaving across multiple SR-91 general purpose lanes is required to access SR-241.

- The weaving between the general purpose connectors and the median lanes is an issue because it degrades the level of service due to increased vehicle density. In addition, the weaving operations contribute to sideswipe accidents.

1.2. Project Description

Caltrans District 12, in cooperation with the F/ETCA proposes the SR-241/SR-91 Express Lanes Connector Project (Proposed Project) to construct a median-to-median connector between SR-241 and the tolled lanes in the median of SR-91 (SR-91 Express Lanes). SR-241 is a tolled facility, starting at the Oso Parkway interchange, in south Orange County, to its terminus at SR-91. The SR-91 Express Lanes is a two-lane tolled facility located within the median of SR-91, from State Route 55 (SR-55), to the Orange/Riverside County line (east of the SR-241 interchange). The existing interchange connects all lanes of the northbound and southbound SR-241 to the non-tolled, general purpose lanes of eastbound and westbound SR-91. There is currently no direct connection between the SR-241 and the SR-91 Express Lanes.

The Proposed Project, located at the junction of SR-241 and SR-91 and in the cities of Anaheim, Yorba Linda, and Corona and the counties of Orange and Riverside, would provide improved access between SR-241 and SR-91 and is proposed to be a tolled facility. The proposed median-to-median connector project encompasses 12-ORA-241 (Post Mile [PM] 36.1/39.1), 12-ORA-91 (PM 14.7/18.9), and 08 RIV-91 (PM 0.0/1.5) for a length of approximately 8.7 mi. Both the Project Location and the Project Vicinity are shown in Figure 1.

Improvements for the connector are limited to 5.9 mi in the cities of Anaheim and Yorba Linda from south of the Windy Ridge Wildlife Undercrossing on SR-241 to Coal Canyon Undercrossing on SR-91. The remaining 2.8 mi of the Proposed Project is limited to FasTrak signage improvements (advance signage) in the cities of Anaheim (1.2 mi total), Yorba Linda (0.1 mi), and Corona (1.5 mi), with exact placement pending the Final Design process. The Proposed Project is mostly within existing Caltrans right-of-way, with one partial acquisition adjacent to eastbound SR-91. Construction access and staging areas would occur within existing Caltrans right-of-way.

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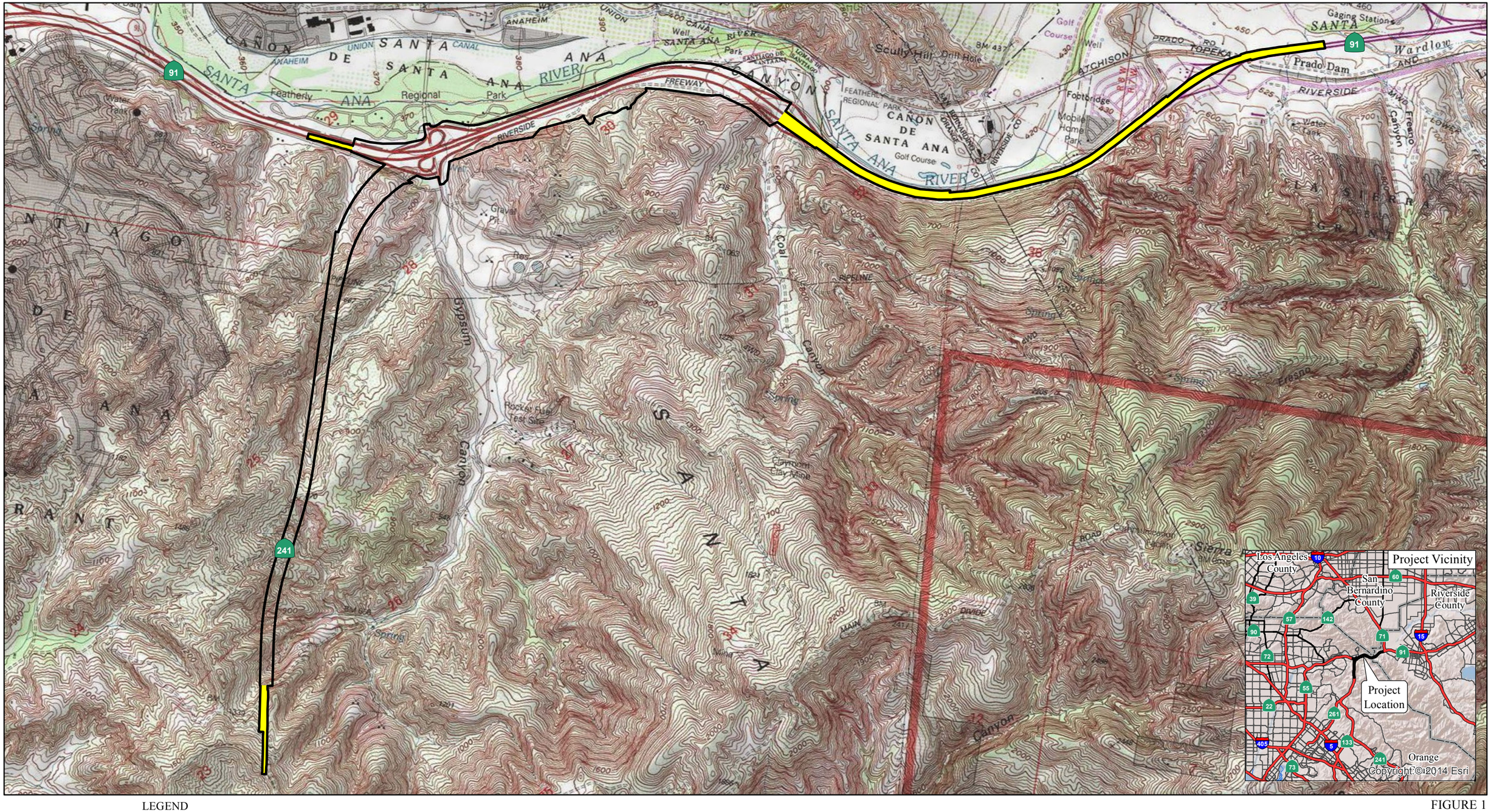

LEGEND

- Project Location
- Advance Signage Areas

FIGURE 1

N

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FEET

SOURCE: USGS 7.5' Quad - Black Star Canyon (1988), CA

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SR-241/SR-91 Express Lanes Connector

Project Location

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The proposed median-to-median connector is a later phase of the ETC project, previously approved in 1994. It was originally evaluated as an SR-241/SR-91 HOV direct connector in the 1991 ETC Draft EIR/EIS, the 1992 ETC Final EIR, and the 1994 ETC Final EIS (all of which studied a broader Project Area with improvements on SR-133, SR-241, and SR-261).

The SMC for the ETC projected that each Build Alternative would be staged, incorporating general purpose traffic and eventually HOV lanes, to meet the forecasted demand. Under the SMC, ETC construction would be completed in one stage, with three or more phases.

To implement this later phase of the ETC, a Supplemental Draft EIR/EIS is being prepared to focus on the eastern portion of the original project and to address changes to environmental conditions and regulatory requirements. Various alternatives were studied in the 1991 ETC Draft EIR/EIS, the 1992 ETC Final EIR, and the 1994 ETC Final EIS; however, the Supplemental Draft EIR/EIS will include a No Build and only one Build Alternative for the median-to-median connector for the following reasons:

- There are limited locations for a median-to-median connector between SR-241 and SR-91.
- The median-to-median connector is a component of a previously approved project and alternative selected during a 1992 EIR Certification and 1994 Record of Decision (ROD).
- Various alternatives were studied for the previously approved project, which required consideration of a reasonable range of alternatives.
- The Supplemental Draft EIR/EIS addresses changes to environmental conditions and regulatory requirements but not changes to the previously approved project as a whole.

The Proposed Project is being coordinated with the Orange County Transportation Authority (OCTA) and the Riverside County Transportation Commission (RCTC). The SR-91 Express Lanes are tolled and are operated by OCTA, from SR-55 to the Orange County/Riverside County line. Easterly from the county line, the lanes are HOV non-tolled lanes; however, as part of the RCTC SR-91 Corridor Improvement Project (SR-91 CIP), RCTC will operate median tolled lanes starting from the county line and ending at Interstate 15 (I-15). As part of the SR-91 CIP, the median tolled lanes include a connector to the southbound I-15 general purpose lanes.

Implementation of the SR-91 CIP along with the Proposed Project would provide a direct connection between SR-241 and southbound I-15.

Caltrans and the F/ETCA intend to begin construction of the Proposed Project in 2017.

1.2.1. Project Alternatives

Two alternatives are being analyzed in this document: the Build Alternative and the No Build Alternative.

1.2.1.1. Build Alternative (Two-Lane Express Lanes Connector)

The Build Alternative would construct a two-lane express lane median-to-median connector between SR-241 and SR-91, which would connect lanes from the median of northbound SR-241 to the existing eastbound SR-91 Express Lanes. The reverse movement would also be accommodated, from the westbound SR-91 Express Lanes to the median of southbound SR-241. The connector would be tolled.

On SR-241 at the southern end of the Proposed Project (near PM 36), FasTrak signage would be improved approximately 0.2 mi south of the Windy Ridge Wildlife Undercrossing. For southbound SR-241, an additional lane and shoulder would be provided by widening Windy Ridge Wildlife Undercrossing into the existing median and improving the highway median approximately 10,000 feet (ft) to the north. For northbound SR-241, starting approximately 5,000 ft north of Windy Ridge Wildlife Undercrossing, an additional lane and shoulder will be provided by improving the highway median approximately 5,000 ft to the north. At this point on SR-241 (approximately PM 38), the two connector lanes would converge within the existing median on fill and two new bridge structures approximately 700 ft (over the northbound SR-241 to westbound SR-91 general purpose lane connector) and 2,000 ft in length (to merge with SR-91), respectively. All approximate lengths will be further refined during the Final Design process.

Additional pavement would be added between the existing northbound SR-241/ eastbound SR-91 and the northbound SR-241/westbound SR-91 general purpose connectors in order to accommodate a concrete barrier separation to prevent vehicles from “queue jumping” into the eastbound SR-91 general purpose connector from the westbound SR-91 general purpose connector. This would improve traffic flow on the SR-241.

The Build Alternative would merge into the existing OCTA SR-91 Express Lanes at the western limits of the RCTC SR-91 CIP, which extends the SR-91 Express Lanes farther east to I-15. The Build Alternative is also compatible with the approved SR-91 CIP for both the initial and ultimate configurations, including the number and widths of the SR-91 Express Lanes, express auxiliary lanes, and general purpose lanes.

Improvements on Eastbound SR-91

At the western end of the SR-91 project terminus, FasTrak signage improvements would occur approximately within the first 0.1 mi of the project. The Gypsum Canyon Road on- and off-ramps and the northbound-SR-241-to-eastbound-SR-91 general purpose connector would be realigned to accommodate the Proposed Project.

To accommodate the addition of the median-to-median connector, the existing eastbound SR-91 lanes would be shifted to the south by adding pavement to the south and restriping. The number of existing eastbound SR-91 general purpose lanes would be maintained within the project limits. At the eastern terminus of the connector bridge structure, the eastbound connector lane would continue for approximately 1 mi within the SR-91 median prior to tapering to tie in to the SR-91 CIP Express Lanes at Coal Canyon Undercrossing. Also near the eastern terminus of the connector lane bridge structure (approximately 2,000 ft west of Gypsum Canyon Road), one additional eastbound auxiliary express lane would be provided, connecting to the auxiliary lane for the SR-91 CIP also at Coal Canyon Undercrossing. These improvements would provide a four-lane express lane facility, tapering down to three lanes between the connector and Coal Canyon Undercrossing.

The eastbound SR-91 Express Lanes would also have striped buffers (tapering from 0 to 4 ft). The Proposed Project would provide a striped buffer to separate the general purpose lanes from the SR-91 Express Lanes and a new striped buffer to temporarily separate the connector lane from the SR-91 Express Lanes. Additional separators within the striped buffers will be further considered during the Final Design process.

Approximately 3,600 ft west of Coal Canyon Undercrossing, grading would occur to accommodate the shift of the lanes to the south. The grading and construction of an access road would encroach into County-owned land on Assessor's Parcel Number (APN) 085-071-56. Approximately 5 acres (ac) of land on this parcel would be acquired from the County of Orange for Caltrans right-of-way. To the north of this parcel, a 1,000 ft retaining wall would be required but would not viewable from the

highway. Further details for the retaining wall and the exact length will be determined during the Final Design process.

Improvements on Westbound SR-91

At the eastern terminus of the connector bridge structure, the westbound connector lane would extend for approximately 1 mi within the SR-91 median, with the lane tapering approximately 1,000 ft west of Coal Canyon Undercrossing. For the eastern 1,000 ft of the westbound connector express lane, one additional westbound auxiliary express lane would be provided to accommodate merging and diverging to and from the SR-91 Express Lanes. These improvements would provide a four-lane express lane facility for approximately 1,000 ft. To provide the additional SR-91 Express Lanes, restriping would occur between points east of the Gypsum Canyon Road Undercrossing and west of Coal Canyon Undercrossing.

There would be a striped buffer (tapering from 0 to 2 ft) to separate the westbound SR-91 Express Lanes from the general purpose lanes. Additional separators within the striped buffer will be further considered during the Final Design process. At the eastern end of the SR-91 project terminus, FasTrak signage improvements would occur between Coal Canyon Undercrossing and Green River Road within the existing median and highway footprint of westbound SR-91. (No roadway improvements would occur in this area.)

Construction Access

The contractor would need access to the SR-91 median in order to construct the Build Alternative.

Coal Canyon Undercrossing

Coal Canyon Undercrossing is used by emergency and maintenance vehicles as a turnaround from eastbound to westbound only. Construction vehicles may use Coal Canyon as a similar turnaround. In addition, construction vehicles may access the median by entering from underneath the Coal Canyon Undercrossing. Temporary shoring and grading may need to be constructed to allow a drivable access route. This access option would be closely coordinated with Caltrans, OCTA and RCTC. Any restrictions with respect to the timing of access would be clearly stated in the project specifications during the Final Design phase.

The following restrictions would apply to work along the Coal Canyon Undercrossing ramps and within the undercrossing:

- No parking or equipment storage
- Maintain the existing fence that separates the paved road from the dirt trail
- No work within the wildlife trail that is on the east side of the existing fence
- No work at night

Gypsum Canyon Undercrossing

Construction vehicles may access the median by entering from underneath Gypsum Canyon Undercrossing. To allow an opening for construction access, part of the existing bridge deck would be removed. Temporary shoring and grading may need to be constructed to allow a drivable access route. This access option would be closely coordinated with Caltrans, OCTA and RCTC. Construction Vehicles would access Gypsum Canyon Road using the SR-91 on- and off- ramps.

Scheduled Maintenance Access

OCTA has regularly scheduled maintenance activities for the *91 Express Lanes* every three weeks on Sunday mornings. This maintenance occurs from approximately 6:00 AM until 12:00 PM. The entire *91 Express Lanes* facility is shut down during this time. This would provide an opportunity to coordinate with OCTA for approval to use these closures to transport large construction equipment to the construction site in the median of SR-91 between the eastbound and westbound *91 Express Lanes*.

Express Lane Access

Construction vehicles that meet express lane requirements may enter the lanes, paying a toll as applicable. Coordination will be required with Caltrans and OCTA to create additional ingress/egress points into the median from the *91 Express Lanes* and whether to permit vehicles larger than the allowable express lane limitations.

Limited Lane Closure Access

It may be necessary to have temporary nighttime closures of the *91 Express Lanes* for construction activities such as erecting falsework, striping lanes and installing median signs. These closures would be coordinated with Caltrans and OCTA during the Final Design phase.

The Build Alternative is shown in Figure 2.

1.2.1.2. NO BUILD ALTERNATIVE

The No Build Alternative would maintain the current configurations of SR-241 and SR-91 in the Project Area. Under this alternative, no direct connector would be constructed between the SR-241 and *91 Express Lanes*. The SR-91 CIP will extend

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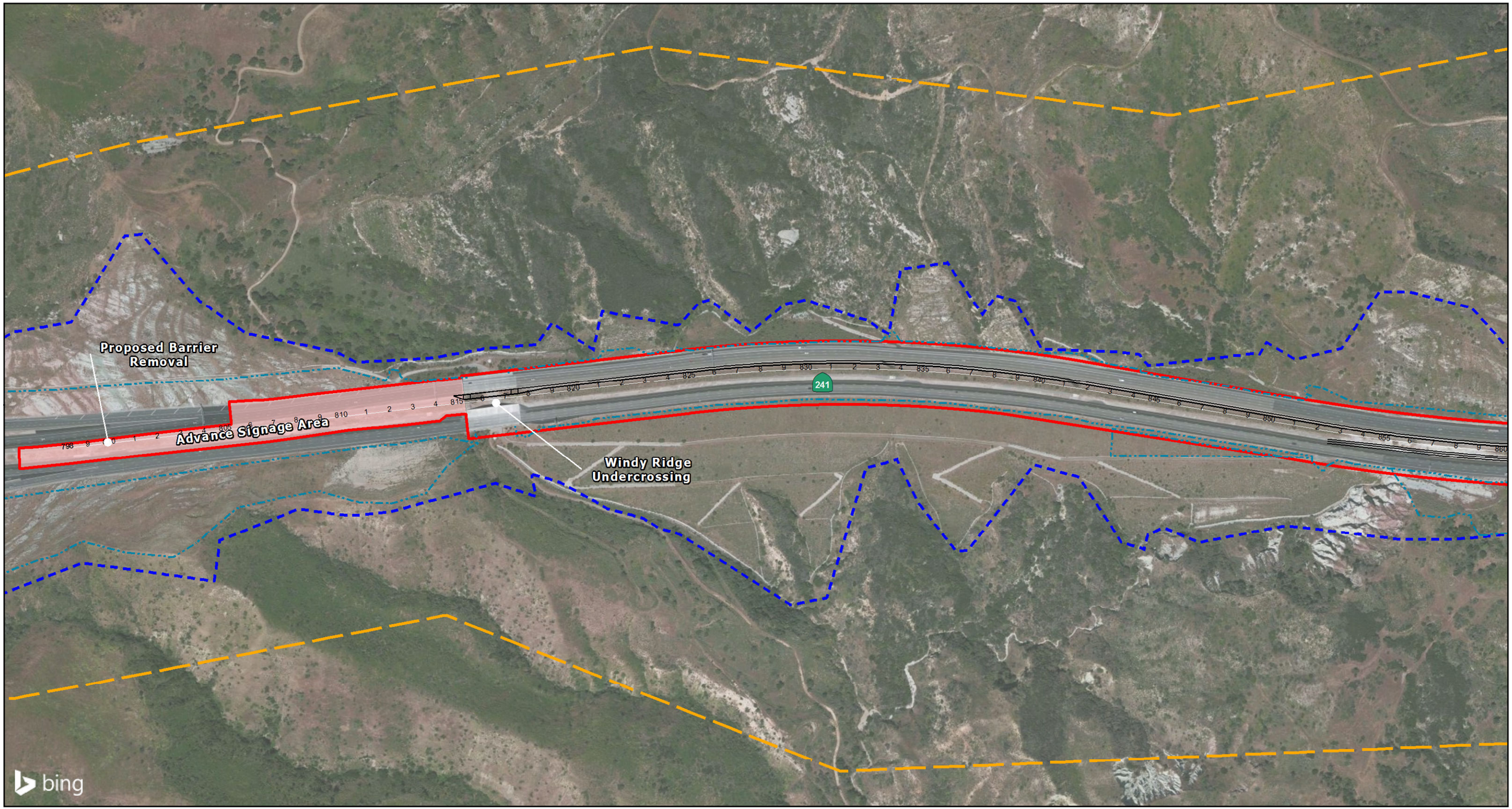

LEGEND

- Project Area (Physical Improvements)
- Advance Signage Areas
- ETC EIR/EIS Project Area
- Existing Caltrans Right-of-Way
- Proposed Right-of-Way
- Existing Wildlife Fencing
- Proposed Roadway
- Proposed Grading Limits (Slope and Access Road)
- Proposed Bridge Structure
- Proposed Retaining Wall
- Station Line
- Proposed Construction Access
- Proposed Construction Staging Area
- Proposed Biofiltration Swale
- Proposed Media Filter
- Proposed Storm Drain Pipe
- Proposed Storm Drain Swale
- Proposed Storm Drain Structure

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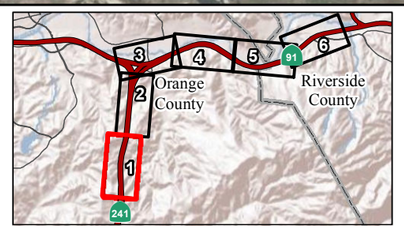

FIGURE 2
Sheet 1 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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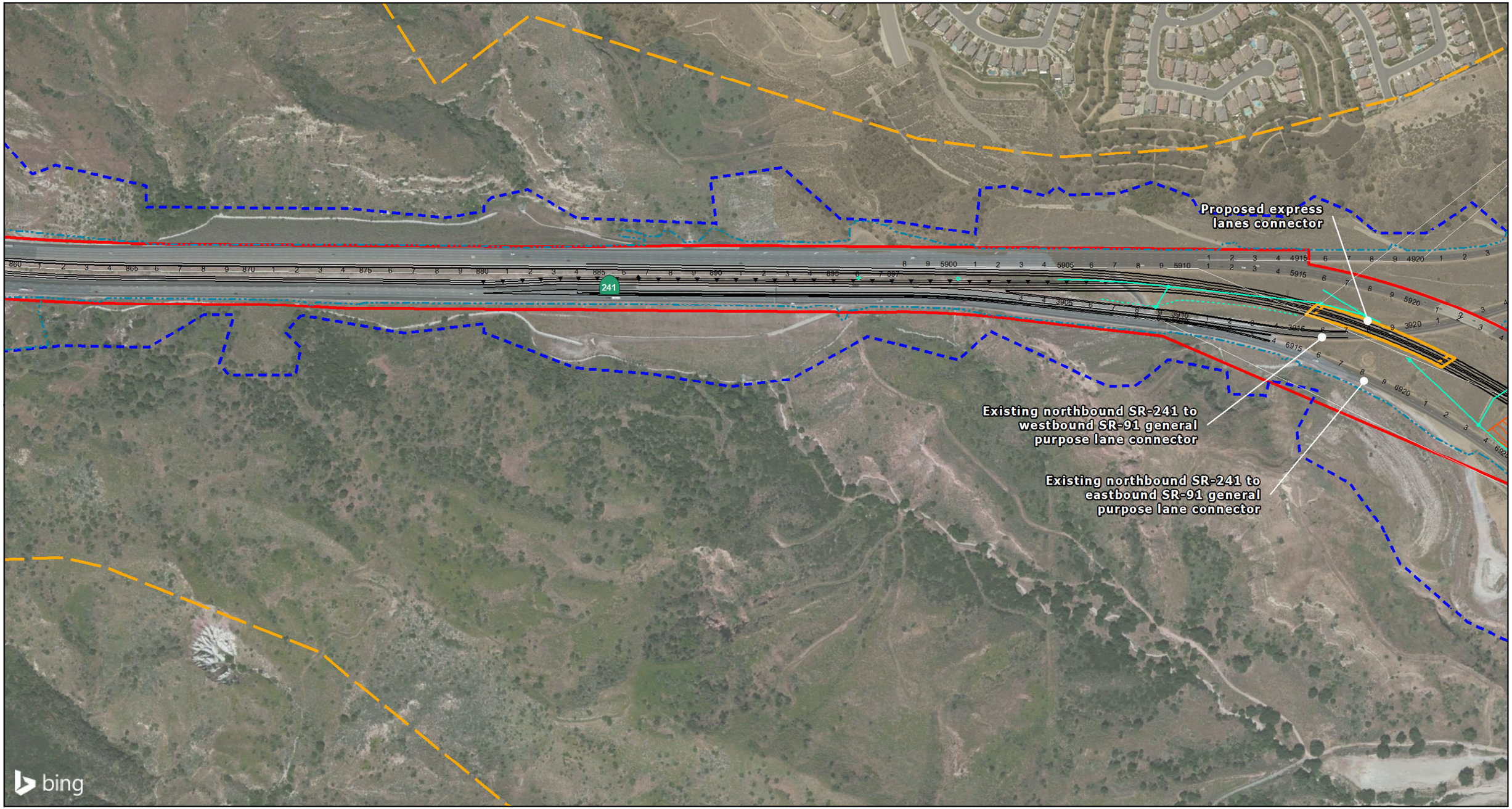

LEGEND

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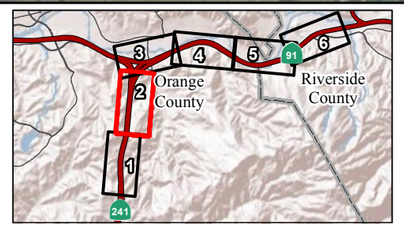

FIGURE 2
Sheet 2 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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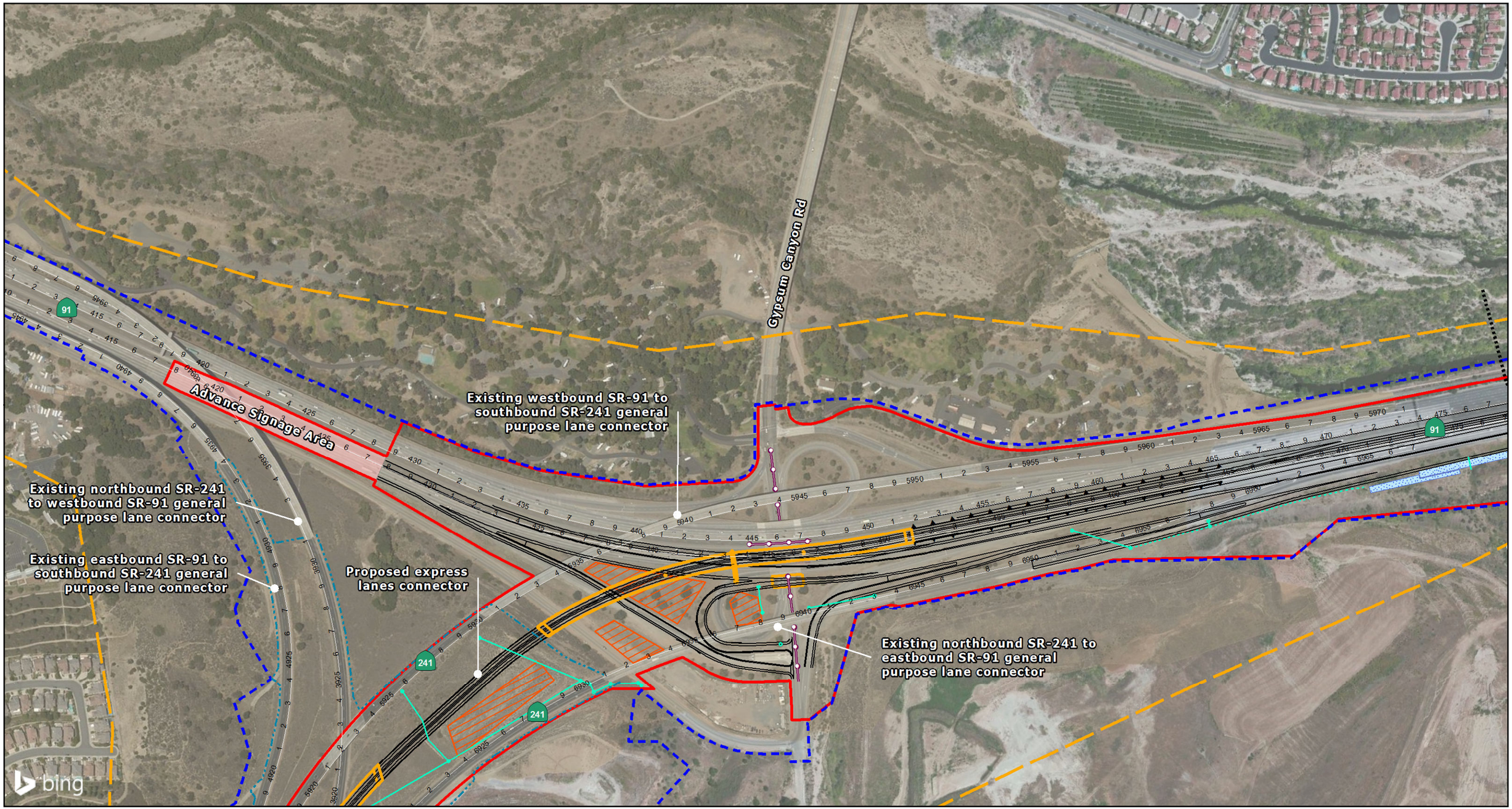

LEGEND

- Project Area (Physical Improvements)
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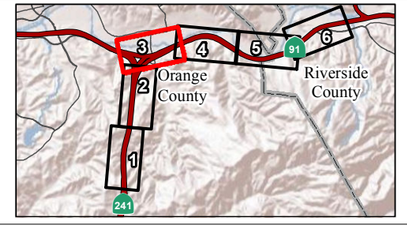

FIGURE 2
Sheet 3 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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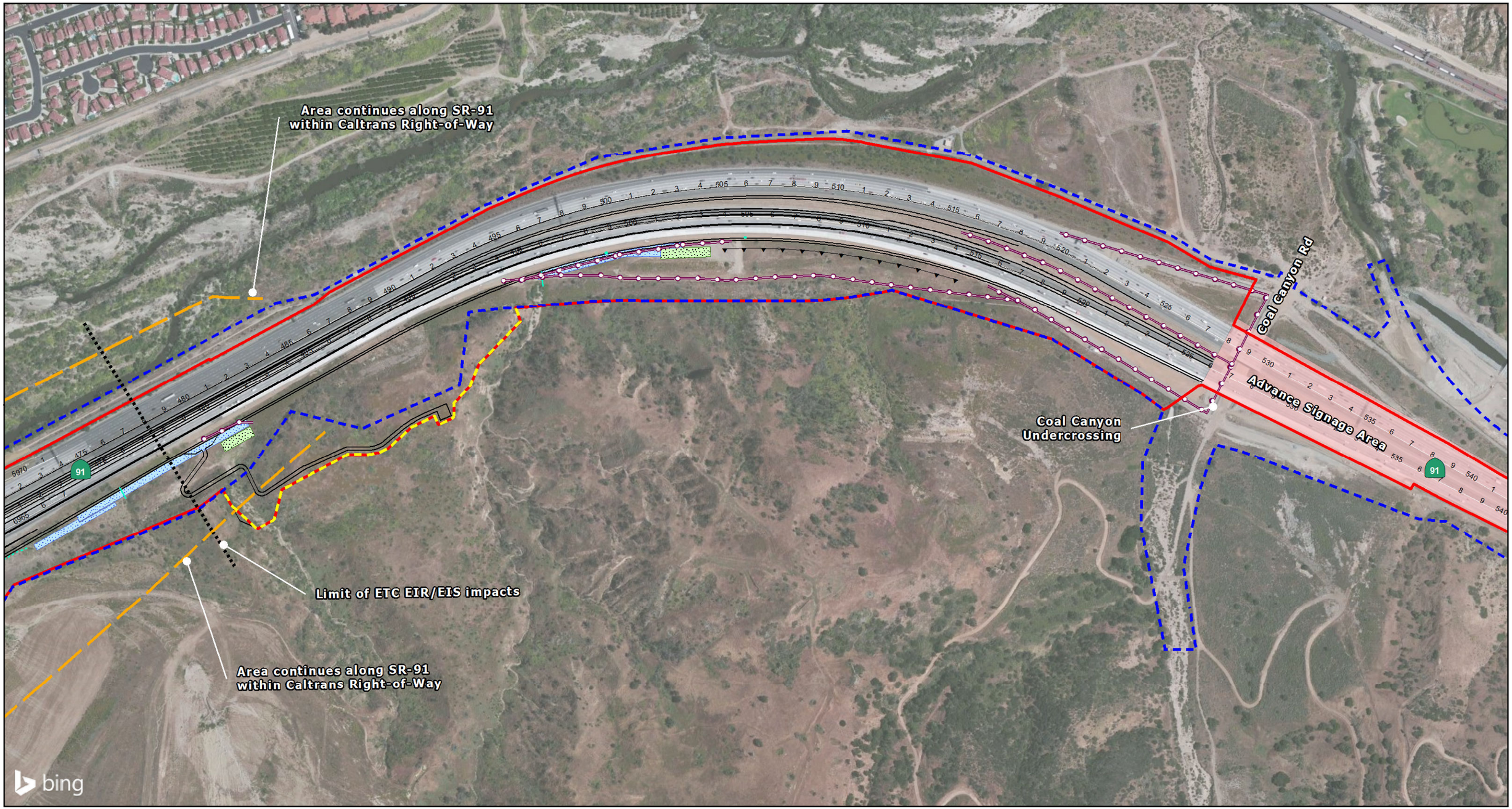

LEGEND

- Project Area (Physical Improvements)
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- ETC EIR/EIS Project Area
- Existing Caltrans Right-of-Way
- Proposed Right-of-Way
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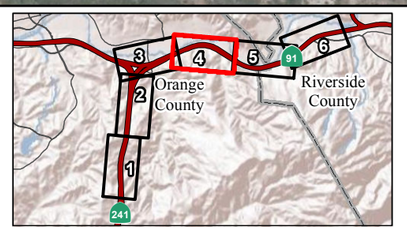

FIGURE 2
Sheet 4 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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Green River Golf Club

Green River Golf Club

San Bernardino County
Riverside County

Orange County

Advance Signage Area

Orange County
Riverside County

bing

LEGEND

- Project Area (Physical Improvements)
- Advance Signage Areas
- ETC EIR/EIS Project Area
- Existing Caltrans Right-of-Way
- Proposed Right-of-Way
- Existing Wildlife Fencing
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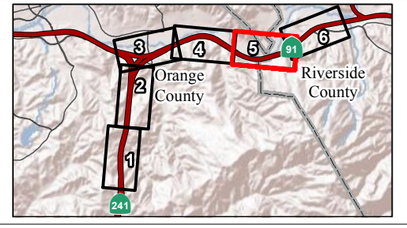

FIGURE 2
Sheet 5 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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LEGEND

- Project Area (Physical Improvements)
- Advance Signage Areas
- ETC EIR/EIS Project Area
- Existing Caltrans Right-of-Way
- Proposed Right-of-Way
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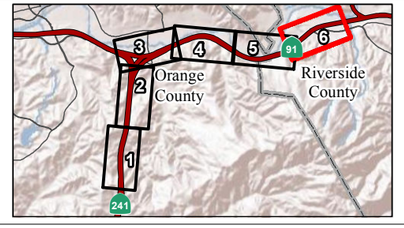

FIGURE 2
Sheet 6 of 6

SR-241/SR-91 Express Lanes Connector

Build Alternative

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the existing *SR-91 Express Lanes* east from the Orange/Riverside County Line to I-15 in the City of Corona. Under the No Build Alternative, motorists traveling north on SR-241 would have to use the general purpose lane connector to eastbound SR-91 and then weave across several lanes to access the eastbound RCTC SR-91 express lanes at the merge area near Green River Road. Similarly, motorists traveling west in the RCTC SR-91 Express Lanes would have to exit at Green River Road (3.5 mi east of the junction of SR-241 and SR-91), merge across lanes, and use the general purpose lane connector to the southbound SR-241. In addition, under the No Build Alternative, motorists would not be prevented from inappropriately "queue jumping" from the existing northbound SR-241 to the westbound SR-91 connector lanes into the northbound SR-241 to the eastbound SR-91 connector lanes during congested traffic periods, thereby disrupting traffic flow on the northbound SR-241 connector to the eastbound SR-91 general purpose lanes during PM peak hours.

1.3. Summary of Consultation to Date

Consultation to date has involved direct communication among F/ETCA, Caltrans District 12, the design engineer, the consultant biologists, and State and federal resource agencies, specifically the USFWS regarding resource avoidance, impact minimization measures, and compensatory mitigation that is described in slightly greater detail in Section 2.4, Agency Coordination and Professional Contacts.

- All of the SR-241 and nearly all of the SR-91 portions of the Project Area were described and analyzed as part of the ETC Final EIR and Final EIS. On July 6, 1994, a Biological Opinion was received from the USFWS (No. 1-6-94-F-17; Appendix D).
- On October 25, 2010, prior to Project Initiation, Valarie McFall, F/ETCA Director of Environmental Planning, emailed Jonathan Snyder, USFWS Division Chief, regarding the potential to create restoration in the City of Irvine (Strawberry Farms). On February 9, 2011, Mr. Snyder responded (USFWS reference: FWS-OR-11B0165-11TA0284) favorably that the area could conceptually be used to offset impacts to future Transportation Corridor Agencies (TCA) projects. USFWS approved the restoration plan (NewFields 2011).
- On May 19 and June 15, 2011, September 9, 2013, and December 1, 2014, a list of threatened or endangered species was obtained from the USFWS Information, Planning, and Conservation (IPaC) online database resource with official species lists obtained on January 22, 2014, February 2, 2015, and February 11, 2016

(USFWS 2016). Appendix E contains the official species list and critical habitat within the BSA.

- Caltrans is the lead agency for Section 7 consultation with the USFWS. Caltrans will submit a Natural Environment Study (NES) and this BA to initiate Section 7 consultation with the USFWS in coordination with F/ETCA.
- On January 27, 2014, Valarie McFall spoke with Jonathan Snyder regarding the consultation process for the Proposed Project. The ETC Biological Opinion (No. 1-6-94-F-17; Appendix D) was originally issued to the FHWA, but currently Caltrans can request Section 7 consultation for the entire project, which would result in an amendment to the Biological Opinion or a new Biological Opinion. There will likely be no need for additional take authorization for listed species. The USFWS can grant take authorization to Caltrans.
- On July 23, 2015, per a September 22, 2015, email from Kedest Ketsela of Caltrans to Ingri Quon of LSA Associates, Inc. (LSA), Sally Brown of the USFWS brought the following issues to F/ETCA: (1) CAGN occurrences and designated critical habitat are in the Project Impact Area and Project Vicinity; (2) Braunton's milk-vetch occurrences and designated critical habitat are adjacent to the Project Area; (3) Santa Ana sucker and its designated critical habitat are north of the SR-91 portion of the Project Area (USFWS 2005b); and (4) the Proposed Project may extend farther east than proposed for coverage by the original Biological Opinion and the incidental take authorization pursuant to the Habitat Conservation Plan (HCP). (Note that the entire footprint of the ETC was included in the original Central/Coastal Natural Community Conservation Plan (NCCP)/ HCP and has thus been fully mitigated.)
- On September 9, 2015, Lisa Williams and Ingri Quon of LSA, Valarie McFall of the F/ETCA, and Jonathan Snyder and Sally Brown of the USFWS held a conference call regarding Santa Ana sucker, least Bell's vireo, and southwestern willow flycatcher species and/or critical habitat in proximity to the BSA. Mitigation was discussed, and Mr. Snyder noted that determining the allowed take for this project is not necessary as long as the Mitigation and Minimization Measures are consistent with the NCCP/HCP.
- On March 10, 2016, Kedest Ketsela and Charles Baker of Caltrans, Jonathan Snyder and Sally Brown of the USFWS, Valarie McFall of F/ETCA, and Lisa Williams, Art Homrighausen, and Richard Erickson of LSA, held a conference call covering several topics in the BA. Based on this conference call, the following items will be included in the BA:

- CSS and critical habitat impacts; the Project Area in CSS habitat covered by the NCCP/HCP is considered mitigated, and no new take would occur based on the previous Biological Opinion.
- Noise and light effects of the Project.
- The location of the nearest population of Braunton's milk-vetch within the critical habitat area and effects determination.
- Evaluation of the Santa Ana sucker.
- Caltrans will initiate new formal Section 7 consultation.

1.4. Document Preparation History

This BA was prepared by the F/ETCA, Caltrans, and consultant biologists following the completion of the *Natural Environmental Study* (NES; LSA 2015). This BA was prepared based on the findings of the technical studies conducted in 2008, 2011, 2013, 2014, and 2015 for the NES.

The primary consultant preparers of this BA include:

- Lisa Williams – LSA Associates, Inc. (Environmental Lead, Project Manager)
- Art Homrighausen – LSA Associates, Inc. (Principal Biologist, Quality Control)
- Ingri Quon – LSA Associates, Inc. (Associate/Senior Biologist)
- Lauren Johnson – LSA Associates, Inc. (Editor, Document Management)
- Chantik Virgil – LSA Associates, Inc. (Word Processor, Document Management)

The primary Caltrans and F/ETCA reviewers of this BA include:

- Kedest Ketsela – Caltrans District 12 (Associate Environmental Planner, District Biologist)
- Valarie McFall – F/ETCA (Director of Environmental Planning)

In addition, refer to Table 2.1, Surveys Conducted and Personnel Utilized, in Chapter 2, Study Methods, for additional personnel (consultants) who conducted the biological surveys.

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Chapter 2. Study Methods

2.1. Listed and Proposed Species Potentially in the Biological Study Area

Federally listed species that were observed or have habitat present within the BSA are discussed further in Chapter 4, Results: Biological Resources, Discussion of Impacts, and Mitigation. Several potentially occurring or detected plant and animal species were recorded in the BSA and are described in this chapter.

2.1.1. Plants

The BSA supports suitable habitat for a variety of special-status plant species, although habitat within the actual Project Area is more limited. After a literature review, it was determined that a total of 40 special-status plant species have the potential to occur on or within the vicinity of the BSA. Seven of these special-status plant species are federally listed as threatened, endangered, or candidate species. Table 2.1 summarizes further information on these species, including status, habitat requirements, and potential for occurrence.

2.1.2. Wildlife

The BSA supports suitable habitat for a variety of special-status wildlife species. After a thorough literature review, it was determined that 74 special-status wildlife species have the potential to occur on or within the vicinity of the BSA. Ten of these species are federally listed as endangered or threatened. In addition, there is USFWS designated critical habitat for one bird species (coastal California gnatcatcher). Table 2.2 summarizes further information on these species, including status, habitat requirements, and potential for occurrence.

2.2. Studies Required

Studies conducted in the BSA include a general survey and habitat assessment, focused botanical surveys, protocol CAGN surveys, a bat habitat suitability assessment, and a jurisdictional delineation. Methodologies used for the botanical surveys and CAGN surveys are described below. The focused studies are described further in the NES. The BSA refers to the area assessed for biological resources (see Appendix G).

Table 2.1: Listed, Proposed Plant Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present/ Absent	Rationale
Munz's onion	*Allium munzii*	FE, ST CRPR: 1B.1	Perennial bulbiferous herb. Occurs in chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley, and foothill grassland usually in heavy clay soils. From 900 to 3,210 ft in elevation.	March–May	HP	Limited habitat for this species is present on site. Not observed during 2011 or 2014 botanical surveys.
San Diego ambrosia	*Ambrosia pumila*	FE CRPR: 1B.1	Clonal herbaceous perennial. Occurs primarily on upper terraces of rivers and drainages, but also in vernal pools. Found primarily in open grassland, but also in disturbed and ruderal areas. Generally found at or below elevations of 1,598 ft.	April–October	A	Project site is outside the known range of the species.
Braunton's milk-vetch	*Astragalus brauntonii*	FE CRPR: 1B.1	Considered a limestone endemic and dependent on fire. Usually on sandstone with carbonate layers following fire but may follow other disturbance and occur on stiff gravelly clay soils over granite. Typically associated with the fire-dependent chaparral habitat on limestone and on down-wash sites. From 12 to 1,920 ft in elevation.	February–July	A (CH is adjacent)	No suitable habitat for this species is present on site, but critical habitat is adjacent. Not observed during 2011, 2013, or 2014 botanical surveys.
Thread-leaved brodiaea	*Brodiaea filifolia*	FT, SE CRPR: 1B.1	Bulbiferous perennial herb. Occurs primarily in vernal pools, but also found in chaparral, cismontane woodlands, coastal scrub, playas, and valley and foothill grasslands, usually in clay soils. From 115 to 4,003 ft in elevation.	March–June	HP	Marginally suitable habitat for this species is present on site. Not observed during 2011, 2013, or 2014 botanical surveys.
San Fernando Valley spineflower	*Chorizanthe parryi* var. *fernandina*	FC, SE CRPR: 1B.1	Annual herb. Occurs in coastal scrub in sandy soils. From 450 to 3,660 ft in elevation.	April–July	HP	Limited habitat for this species is present on site. Not observed during 2011, 2013, or 2014 botanical surveys.

Table 2.1: Listed, Proposed Plant Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present/ Absent	Rationale
Slender-horned spineflower	*Dodecahema leptoceras*	FE, SE CRPR: 1B.1	In the Vail Lake area, occurs in gravel soils of Temecula arkose deposits in openings in chamise chaparral. In other areas, occurs in sandy cobbly riverbed alluvium in alluvial fan sage scrub (usually late seral stage), on floodplain terraces and benches that receive infrequent overbank deposits from generally large washes or rivers, where it is most often found in shallow silty depressions dominated by leather spineflower (*Lastarriaea coriacea*) and other native annual species, and is often associated with cryptogamic soil crusts composed of bryophytes, algae and/or lichens. Occurs at 200 to 2,500 ft elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties, California.	April–June	A	No suitable habitat for this species is present on site. Not observed during 2011, 2013, or 2014 botanical surveys.
Santa Monica Mountains dudleya	*Dudleya cymosa* ssp. *ovatifolia*	FT CRPR: 1B.1	Granitic, quartzite, or (rarely) limestone outcrops, in pebble plains, pinyon-juniper woodland, and upper montane coniferous forest at 4,200 to 8,500 ft elevation. Known only from San Bernardino County.	April–June	A	Site is not within elevation range.
Santa Ana River woollystar	*Eriastrum densifolium* ssp. *sanctorum*	FE, SE CRPR: 1B.1	Perennial herb. Occurs in chaparral and coastal scrub in sandy or gravelly soils on river floodplains or terraced fluvial deposits. From 273 to 1,830 ft in elevation.	May–September	A	No suitable habitat for this species is present on site. Not observed during 2011, 2013, or 2014 botanical surveys.
Gowen cypress	*Hesperocyparis goveniana*	FE CRPR: 1B.2	Usually found in sandy soils on coastal terraces, closed-cone coniferous forests and maritime chaparral (sometimes with Monterrey and Bishop Pines) from 100 to 1,000 ft. Endemic to California, only known from Monterey County.	N/A	A	No suitable habitat for this species is present on site. Not observed during 2011, 2013, or 2014 botanical surveys.

Table 2.1: Listed, Proposed Plant Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Habitat Present/ Absent	Rationale
CRITICAL HABITAT						
Braunton's Milk-vetch	*Astragalus brauntonii*	F: Designated Critical Habitat	Final critical habitat for Braunton's milk-vetch. Identification number 2011. Designated on December 14, 2006.	N/A	A (CH is adjacent)	One critical habitat polygon occurs on the south side of SR-91 just outside of the BSA.

Status:
- F = Federal Designation
- FC = Federal Candidate
- FE = Federal Endangered
- FT = Federal Threatened
- SE = State Endangered
- ST = State Threatened

Habitat Present/Absent:
- A = No habitat is present and no further work needed.
- CH = The Proposed Project footprint is located within a designated critical habitat unit, but this does not necessarily mean that appropriate habitat is present.
- HP = Habitat is or may be present. The species may be present.
- O = The species was observed in the project t area during a survey.

California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) designations:
- CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
- CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A: Plants presumed extirpated in California, but common elsewhere.
- CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
- CRPR 3: Plants about which more information is needed - a review list.
- CRPR 4: Plants of limited distribution - a watch list.

CNPS Threat Ranks:
- 0.0: No rank designated by the CNPS (added as a placeholder).
- 0.1: Seriously threatened in California (over 80% of occurrences threatened - high degree and immediacy of threat)
- 0.2: Moderately threatened in California (20-80% occurrences threatened - moderate degree and immediacy of threat)
- 0.3: Not very threatened in California (less than 20% of occurrences threatened - low degree and immediacy of threat or no current threats known)

Abbreviations/Acronyms:
- BSA = Biological Study Area
- ft = foot/feet
- N/A = not applicable
- SR-91 = State Route 91

Table 2.2: Listed, Proposed Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Habitat Present/ Absent	Rationale
INVERTEBRATES					
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE, SSA	Endemic to San Diego and Orange County mesas. Found in ponded areas, such as vernal pools, cattle watering holes, basins, etc.	A	Suitable habitat is absent from the BSA.
Quino checkerspot butterfly	*Euphydryas editha quino*	FE, SSA	Generally associated with sage scrub, open chaparral, grasslands, and vernal pools. Within these communities, usually observed in open or sparsely vegetated areas (including trails and dirt roads), and on hilltops and ridgelines. Larval host plant is usually *Plantago erecta*.	A	Project is outside of known range and outside of survey area.
Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	Endemic to the Colton Dunes ecosystem and Riverside/San Bernardino counties. It is only found in Delhi fine sands soil.	A	Suitable habitat is absent from the BSA.
Riverside fairy shrimp	*Streptocephalus woottoni*	FE, SSA	Endemic to western Riverside, Orange, and San Diego Counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub.	A	Suitable habitat is absent from the BSA.
FISH					
Santa Ana sucker	*Catostomus santaanae*	FT, SSC	Endemic to the Los Angeles Basin south coastal streams. It is usually found in fresh water with sand-rubble or boulder bottoms.	A	Suitable habitat is absent from the BSA.
AMPHIBIANS					
Arroyo toad	*Anaxyrus californicus*	FE, SSC	Found in semi-arid regions near washes or intermittent streams. Often near streams with sandy banks, gravel washes, and riparian vegetation.	A	Suitable habitat is absent from the BSA.
BIRDS					
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, SE	Nests in riparian forests, along the broad, lower flood-bottoms of large river systems. Nests are found in jungles of willow often mixed with cottonwoods with understory of blackberry, nettles, or wild grape.	A	Suitable habitat for this species in the BSA is lacking. Now extremely rare in the Prado Basin.
Southwestern willow flycatcher (nesting)	*Empidonax traillii extimus*	FE, SE	Rare and local breeder in riparian habitat usually with standing water, in the southwestern U.S. and (formerly?) northwestern Mexico. Winters in Central and South America.	A	Suitable nesting habitat is absent from the BSA, but the species may occasionally forage in the BSA.

Table 2.2: Listed, Proposed Wildlife Species and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status Listing	Habitat and Comments	Habitat Present/ Absent	Rationale
Least Bell's vireo (nesting)	*Vireo bellii pusillus*	FE, SE	Occurs in moist thickets and riparian areas that are predominantly composed of willow and mulefat.	A	Suitable nesting habitat is absent from the BSA, but the species may occasionally forage in the BSA.
Coastal California gnatcatcher	*Polioptila californica californica*	FT, SSC	Obligate, permanent resident of coastal sage scrub below 2,500 ft in southern California.	HP, O	Suitable habitat is present within the BSA. Family group observed during 2011 focused surveys.
CRITICAL HABITAT					
Coastal California Gnatcatcher	*Polioptila californica californica*	F: Designated Critical Habitat	Final critical habitat for CAGN. Identification numbers 357 and 365. Both designated on January 18, 2008. Unit 7: Central-Coastal NCCP. This 4,309 ac unit is under State (Chino Hills State Park), County, and private ownership and includes select areas defined in the NCCP/HCP as Existing Use Areas (areas not included in the NCCP/HCP). This area is not included in the permit area covered under the NCCP/HCP; therefore, there is no requirement to manage for CAGN or its habitat in this area.	CH	Two critical habitat polygons occur in the BSA along the SR-91.

Status:

F = Federal Designation
FE = Federal Endangered
FT = Federal Threatened
SE = State Endangered
SSA = State Special Animal
SSC = State Species of Special Concern

Habitat Present/Absent:

A = No habitat is present and no further work needed.
CH = The Proposed Project footprint is located within a designated critical habitat unit, but this does not necessarily mean that appropriate habitat is present.
HP = Habitat is or may be present. The species may be present.
O = The species is present. The species was observed or detected in the BSA.

Abbreviations/Acronyms:

ac = acre/acres
BSA = Biological Study Area
CAGN = California gnatcatcher
ft = foot/feet
HCP = Habitat Conservation Plan
NCCP = Natural Community Conservation Plan
SR-91 = State Route 91

2.2.1. Description of the Biological Study Area

The BSA was determined by incorporating electronic data provided by the design engineer into a geographic information system (GIS) layout, which included areas of potential direct impact. The limits of the BSA were extended beyond the maximum extent of potential direct impact, where necessary, to identify sensitive biological resources within and adjacent to the Project Area, but were limited to within the SR-241 and SR-91 right-of-way plus the slope south of SR-91, approximately 3,600 ft west of Coal Canyon Undercrossing, that would be graded. This slope area, on County land (APN 085-071-56), is subject to a conservation easement and is part of the Irvine Ranch National Natural Landmark and is also a California Natural Landmark. Although the slope would be revegetated after construction is complete, a maintenance access road and drainage structures may need to be constructed on the slope; therefore, all impacts on this parcel are considered permanent.

In general, this provided for a survey area that was larger than the area of potential direct impact. For the purposes of this document, the effective "study area" extends for an indefinite distance beyond the BSA to incorporate any areas potentially subject to direct or indirect effects to federally listed species. The BSA constitutes most of the "Action Area" as defined by the USFWS under the Glossary of Terms used in Section 7 Consultations. Adjacent areas that are potentially subject to indirect impacts are also considered.

2.2.2. Definition of Project Effects

For the purposes of this report, permanent effects are those that may have substantial detrimental effects to the long-term viability of biological resources. Direct permanent effects include, but are not limited to, complete removal and replacement of native vegetation with impervious surfaces, use of heavy equipment (e.g., grading) during construction, and/or direct take of individuals through death or harm. Indirect permanent effects are those that could lead to loss of suitable habitat over time such as an increase in storm water runoff pollutant concentrations or litter into biologically sensitive areas. In addition, construction may indirectly and permanently affect biological resources through enhancing the germination and proliferation of nonnative invasive plant species.

Areas of direct temporary effects would only be affected during construction to allow for construction access (e.g., temporary construction easements) and equipment staging. At minimum, temporarily affected areas will be restored to their original condition after the completion of construction. Indirect temporary effects include

construction-related effects that may travel away from areas of direct effect, such as dust and potential fuel spills from construction equipment. Temporary effects are limited to incidental encroachment; otherwise, the effects are considered permanent.

2.2.3. Survey Methods

Prior to performing the field surveys, existing documentation relevant to the BSA was reviewed. The most recent records of the California Natural Diversity Data Base (CNDDB) (Commercial Version) and the California Rare Plant Rank (CRPR; formerly the California Native Plant Society's [CNPS] Electronic Inventory of Rare and Endangered Vascular Plants of California) (2011, 2013, and 2014) were reviewed for the quadrangles containing and surrounding the BSA (i.e., minimally the *Orange, Yorba Linda, Black Star Canyon,* and *Prado Dam, California,* United States Geological Survey [USGS] 7.5-minute quadrangles). These databases contain records of reported occurrences of federal- or State-listed as threatened, endangered, proposed endangered or threatened plant species; California Species of Special Concern (SSC); or otherwise special-status plant species or habitat that may occur within or in the immediate vicinity of the BSA. In addition, a list of species occurring in the County of Orange was obtained from the USFWS website on May 19 and June 15, 2011. A preliminary list of species occurring in the BSA was obtained from the USFWS IPaC System online database most recently on December 1, 2014. An official species list letter from the USFWS most recently on February 11, 2016, provided a list of proposed, threatened, or endangered species and sensitive habitats potentially occurring in the vicinity of the Proposed Project (see Appendix E; USFWS 2016).

The reconnaissance-level survey and plant community mapping was conducted on May 10, 2011, March 17, 2015, and March 19, 2015, by LSA Biologist Stan Spencer, Ph.D. Plant communities and subcommunities were determined in general accordance with categories set forth in Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). Plant communities were mapped on an orthographically corrected 1 inch = 200 ft aerial photograph. Plant communities that were considered too small to map separately were included in nearby community types determined to be the most appropriate based on species composition.

To adequately identify plant communities within the BSA, survey methods included pulling off onto SR-91 and SR-241 rights-of-way, as well as exiting SR-91 and SR-241 to access frontage roads leading to necessary observation points. Access to the County parcel was provided by a County Park Ranger and Nature Conservancy

staff. At the observation points, each biologist investigated the roadside areas on foot or with the aid of binoculars if foot access was not possible.

The plant communities identified in the BSA are shown in Appendix G, Biological Resources and Project Effects.

2.2.4. Focused Botanical Surveys

A full season of focused botanical surveys within the BSA was conducted by LSA Biologist Dr. Spencer on May 10 and June 28, 2011. A late season botanical survey was conducted by Dr. Spencer and Elizabeth Hohertz on August 22, 2013, and early season focused botanical surveys were conducted by Dr. Spencer on May 15, 16, 20, and 27, 2014, which completed a full season plant survey. In addition, the identification and mapping of the scattered coast live oak trees at the junction of SR-241 and SR-91 was completed using aerial imagery (Bing maps) followed by a ground-truthing visit in the summer of 2014. Furthermore, because the slope-grading area south of SR-91 was added following the 2014 blooming season, focused survey results from 2001 and 2003 were cited from the Mountain Park Specific Plan Amendment Draft EIR (BonTerra 2005). However, on March 17 and 19, 2015, a botanical survey of the recently added slope area south of SR-91 was conducted by Dr. Spencer.

Focused special-interest plant survey timing considered the flowering season for native plant species, which varies and is dependent on the frequency, duration, and seasonal timing of rainfall events, moisture availability, and soil and air temperatures. The potential for detection of plant species is variable from month to month and year to year. Therefore, the timing of the surveys was selected to correspond with the optimal time for detecting special-interest plants in the BSA. Elevation in the survey area varies from approximately 370 ft above mean sea level (amsl) to 1,570 ft amsl. The topography is moderately rolling adjacent to SR-91, with steep canyons and hillsides from the Santa Ana Mountains bordering SR-241.

Special-status plant species that are listed by the federal or State resource agencies and those listed by the CNPS as CRPR 1B, 2, 3, and 4 with the potential of occurring within the BSA were the focus of the surveys. The surveys were floristic in nature, and all vascular plant species encountered in the BSA were identified, not only special-interest plants. Plant nomenclature follows that of *The Jepson Manual, Higher Plants of California* (Hickman, J.C., ed. 1993). All plant species observed during the

2011, 2013, and 2014 surveys were noted and are listed in Appendix A, Vascular Plant Species Observed.

2.2.5. Focused Wildlife Surveys

2.2.5.1. Focused Coastal California Gnatcatcher Surveys

LSA Biologists Richard Erickson, Eric Krieg, and Ingri Quon conducted USFWS protocol surveys for CAGN between April 14 and June 9, 2011, pursuant to Federal Fish and Wildlife Permit TE-777965-9 (April 8, 2008–April 7, 2012) and a letter permit from the CDFW attached to Scientific Collecting Permit SC-000777 covering conditions for research on listed birds (July 23, 2009–April 12, 2012). The survey results letter report is included in Appendix C. Appendix B references the animal species detected, primarily during the focused CAGN surveys.

2.3. Personnel and Survey Dates

Table 2.3 lists the surveys completed and the personnel utilized for the surveys.

Table 2.3: Surveys Conducted and Personnel Utilized

Survey Type	Dates	Consultant Biologist(s)
Bat Habitat Suitability Assessment	November 30, 2011	Jill Carpenter and Ingri Quon
Biological Reconnaissance Survey, Plant Community Mapping	May 10, 2011	Stan Spencer, Ph.D.
Botanical Surveys	2001, 2003 (SR-91 slope grading area); May 10 and June 28, 2011; August 22, 2013; May 15, 16, 20, and 27, 2014; March 17 and 19, 2015	PCR staff (SR-91 slope grading area);[1] Stan Spencer, Ph.D., and/or Elizabeth Hohertz
Oak and Sycamore Tree Mapping	Summer 2014	Ingri Quon
Focused CAGN Surveys	April 14; May 2, 10, and 26; and June 2 and 9, 2011	Richard Erickson, Eric Krieg, and Ingri Quon
Jurisdictional Delineation	July 26 and 31, August 5, September 19 and 30, October 2 and 3, December 10 and 11, 2008; December 3, 2013; March 19, 2015	Elizabeth Hohertz, Kristen Yee, Angela Roundy, Laura Rocha, Nicole West, Stan Spencer, Ph.D., Wendy (Walters) Davis, Sarah Barrera; Ingri Quon, and Lonnie Rodriguez; Stan Spencer, Ph.D.

[1] In 2001 and 2003, PCR staff conducted botanical surveys in an area overlapping the slope grading area south of SR-91 (BonTerra 2005). This area outside of the Caltrans right-of-way, within County of Orange property, was not originally part of the BSA for the SR-241/SR-91 Express Lanes Connector Project.

BSA = Biological Study Area
Caltrans = California Department of Transportation
SR-91 = State Route 91
SR-241 = State Route 241

2.4. Agency Coordination and Professional Contacts

- All of the SR-241 and nearly all of the SR-91 portions of the Project Area were described and analyzed as part of the ETC Final EIR and Final EIS. A Biological Opinion was received from the USFWS for this project on July 6, 1994 (No. 1-6-94-F-17; Appendix D).
- On October 25, 2010, prior to Project Initiation, Valarie McFall, F/ETCA Director of Environmental Planning, emailed Jonathan Snyder, USFWS Division Chief, regarding the potential to create coastal sage scrub (CSS) and cactus scrub restoration on 15 ac of property in the City of Irvine (Strawberry Farms) just south of the Strawberry Farms Golf Course near the Sand Canyon Reservoir. On February 9, 2011, Mr. Snyder responded (USFWS reference: FWS-OR-11B0165-11TA0284) favorably, subject to review and approval of a restoration plan, that the area could conceptually be used to offset impacts to CSS and cactus scrub associated with future TCA projects in the County of Orange. A restoration plan was prepared and USFWS approved (NewFields 2011).
- On May 19 and June 15, 2011, September 9, 2013, and December 1, 2014, a preliminary list of threatened or endangered species that may occur in the BSA was obtained from the USFWS IPaC online database resource with official species lists obtained on January 22, 2014, February 2, 2015, and February 11, 2016 (USFWS 2016). Appendix E contains the official species list, which includes critical habitat within the BSA. Per Caltrans NES guidelines, IPaC lists are valid for 180 days.
- Caltrans is the lead agency for Section 7 consultation with the USFWS. Caltrans will submit an NES and this BA to initiate Section 7 consultation with the USFWS in coordination with F/ETCA.
- On January 27, 2014, Valarie McFall of F/ETCA spoke with Jonathan Snyder of the USFWS regarding the consultation process for the Proposed Project. The ETC Biological Opinion (No. 1-6-94-F-17; Appendix D) was originally issued to the FHWA, and National Environmental Policy Act (NEPA) responsibilities are now assigned to Caltrans; therefore, Caltrans will send a letter to the USFWS requesting Section 7 consultation. The consultation will be for the entire project, which will result in an amendment to the Biological Opinion, or a new Biological Opinion, addressing the revisions to the details of the Project Description. There will likely be no need for additional take authorization for listed species since the Proposed Project does not change or increase the effect to the listed species included in the original Biological Opinion. If necessary, the USFWS can grant

take authorization to Caltrans since the original Biological Opinion was issued to the FHWA.

- On July 23, 2015, per a September 22, 2015, email from Kedest Ketsela of Caltrans to Ingri Quon of LSA, Sally Brown of the USFWS brought the following issues to F/ETCA: (1) CAGN occurrences and designated critical habitat are in the Project Impact Area and Project Vicinity; (2) Braunton's milk-vetch occurrences and designated critical habitat are adjacent to the Project Area; (3) Santa Ana sucker and their designated critical habitat are north of the SR-91 portion of the Project Area (USFWS 2005b); and (4) the Proposed Project is thought to extend farther east than proposed for coverage by the original Biological Opinion and the incidental take authorization pursuant to the HCP. (Note that the entire footprint of the ETC was included in the original Central/Coastal NCCP/HCP and has thus been fully mitigated.)

2.5. Limitations That May Influence Results

The collection of biological field data is normally subject to environmental factors that cannot be controlled or reliably predicted. Consequently, the interpretation of field data must be conservative (i.e., biased toward protecting the biological resource) and consider the uncertainties and limitations necessarily imposed by the environment. However, due to the experience and qualifications of the consultant biologists involved in the surveys, this limitation is not expected to severely influence the results or substantially alter the findings.

The late season botanical survey was conducted in August 2013 and the complementary early season survey was conducted in May 2014. An early season botanical survey was conducted on the County parcel in March 2015. These years were subject to atypical weather factors involving below-average rainfall; therefore, some species or portions of a plant population or a specific species may not emerge suitably for detection or identification during surveys. However, because most of the area had been surveyed for plants in 2011 and because there were no sensitive plant species expected to occur in the BSA with more than a low probability, and due to the experience and qualifications of the consultant biologists involved in the surveys, this limitation is not expected to severely influence the results or substantially alter the findings.

The results of the biological resource surveys are limited where access was not available due to unsafe terrain. In these cases, binoculars were used to identify biological resources.

Although information was gathered from the entire BSA, Proposed Project impacts discussed in this report are considered for biological resources that fall within the Project footprint of the Build Alternative and in adjacent areas that may be directly or indirectly impacted by the Proposed Project. Therefore, biological resources may be found in the BSA but may not be impacted by the Proposed Project.

The BSA was limited to within the SR-241 and SR-91 right-of-way plus the slope south of SR-91, approximately 3,600 ft west of Coal Canyon Undercrossing. This slope area, on County land (APN 085-071-56) was surveyed for biological resources on March 17 and 19, 2015. The survey specifically addressed vegetation mapping, a focused botanical survey, a general wildlife survey, and a jurisdictional delineation of the area, which included drainage Feature 5. Survey conditions (e.g., weather, season) were favorable; therefore, these conditions are not expected to limit the results.

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Chapter 3. Results: Environmental Setting

3.1. Description of the Existing Biological and Physical Conditions

As described in *The Jepson Manual, Higher Plants of California* (Hickman 1993), the BSA is located within the South Coast subregion of the Southwestern California region of the California Floristic Province. The South Coast subregion is characterized by valleys and small hills extending from the coast inland to the foothills of the Transverse and Peninsular Mountain ranges. Much of the area is intensively developed for urban, suburban, and agricultural uses. The natural vegetation of the subregion consists primarily of chaparral, CSS, annual grasslands, and some riparian scrub and woodland. Much of the natural vegetation occurs in scattered, often fragmented in patches on hills or in other areas not easily developed.

3.1.1. Biological Study Area

The Project Area lies within the cities of Anaheim, Yorba Linda, and Corona, and counties of Orange and Riverside, California. There are two arterial roadway corridors, La Palma Avenue and Santa Ana Canyon Road, within the Project Vicinity that are parallel to SR-91. Featherly Regional Park, the Santa Ana River, and the Santa Ana River Trail border the north side of SR-91. To the immediate south of SR-91 and west of SR-241, the area is predominantly bordered by residential properties. To the east of SR-241 and south of SR-91, the area consists of undeveloped areas. Farther south of SR-91, east and west of SR-241, the area is open space (Irvine Ranch National Natural Landmark).

The Project Area is almost entirely within the NCCP/HCP Plan Area and, therefore, the majority of effects have been mitigated through TCA's participation in the NCCP/HCP. This area includes SR-241 and the area south of the center lanes of westbound SR-91; therefore, the non-NCCP/HCP Plan Area portion of the Project Area is the area north of the center lanes of westbound SR-91 and the vegetation communities north of these lanes (see Appendix G, Sheets 5 through 9). A very small portion of an NCCP/HCP Existing Use Area intersects the eastern end of the Project Area along SR-91 and Coal Canyon Undercrossing. The Project Area is not located within any portions of the NCCP/HCP Reserve, but SR-241 passes between two parts of the Reserve in the Windy Ridge Wildlife Undercrossing area, and this wildlife crossing is designed to functionally link these two NCCP/HCP Reserve areas with the

Coal Canyon Ecological Reserve,[1] Rancho Lomas de Santiago,[2] and the Cleveland National Forest.[3]

The BSA is approximately 8.7 total linear miles. Approximately 3 linear miles are along SR-241, from south of Windy Ridge Wildlife Undercrossing, north to the junction of SR-24 and SR-91. Approximately 5.7 mi are along SR-91 from west of the junction of SR-241 and SR-91 east to just east of Green River Road (see Appendix G). The BSA is located on the USGS *Black Star Canyon, California,* 7.5-minute series topographical quadrangle.

The BSA is within F/ETCA and Caltrans right-of-way with the exception of a proposed slope grading area (approximately 5 ac) along the south side of SR-91, which extends into County-owned land.

3.1.2. Physical Conditions

There are varieties of plant communities located within the BSA, including CSS, chaparral, nonnative grassland, ruderal vegetation, ornamental vegetation, and developed areas.

Elevations range from approximately 370 to 1,570 ft amsl. The topography is moderately rolling adjacent to SR-91, with steep canyons and hillsides from the Santa Ana Mountains bordering the southernmost portion of the BSA. Canyons and tributary washes associated with the Santa Ana River also occur throughout the BSA.

3.1.3. Biological Conditions in the Biological Study Area

The following sections summarize the principal characteristics, general locations, and total acreages of the plant communities, invasive plant species, general wildlife, and aquatic resources within the BSA. Representative site photographs of the BSA are depicted in Appendix F. Appendix G includes the biological resource maps, which indicate the existing plant communities within the BSA. Appendix A references the vascular plant species observed. Appendix B references the animal species observed, primarily during the focused CAGN surveys.

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1 The Coal Canyon Ecological Reserve is managed by the CDFW.

2 Rancho Lomas de Santiago is managed by public and private entities.

3 The Cleveland National Forest is managed by the United States Department of Agriculture, Forest Service.

3.1.3.1. PLANT COMMUNITIES AND HABITAT TYPES

Six plant communities were identified within the BSA and are shown on the biological resources figure in Appendix G. Table 3.1 lists the acreages of each of the plant communities present within the BSA boundary.

Table 3.1: Plant Communities Occurring within the Project Area

Plant Community	Total Acres
Scrub and Chaparral Habitats	
Coastal Sage Scrub	54.10
Chaparral	14.38
Woodland Habitat	
Coast Live Oak Woodland	0.68
Disturbed Habitats	
Ruderal Vegetation (includes coast live oak [0.26 ac] and western sycamore trees [0.40 ac])	34.13
Nonnative Grassland	22.06
Developed Areas (includes Bare Ground 1.29 ac)	162.19
Total	**287.54**

ac = acre/acres

Coastal Sage Scrub

CSS occurs throughout the entire BSA. Species within this plant community include California sagebrush (*Artemisia californica*), coastal deerweed (*Lotus scoparius* var. *scoparius*), California buckwheat (*Eriogonum fasciculatum*), chaparral yucca (*Hesperoyucca whipplei*; formerly *Yucca whipplei*), California encelia (*Encelia californica*), brittlebush (*Encelia farinosa*), and California poppy (*Eschscholzia californica*).

Chaparral

The chaparral plant community primarily occurs in the eastern portion of the BSA along SR-91 and east of the junction of SR-241 and SR-91. Within the BSA, chaparral is often interspersed with CSS and coast live oak woodland plant communities. This is because chaparral is typically a transitional habitat to higher-elevation plant communities in mountain ranges. Species within this plant community include laurel sumac (*Malosma laurina*), coast live oak (*Quercus agrifolia*), California sagebrush, California buckwheat, and chaparral yucca.

Nonnative Grassland

Nonnative grassland occurs throughout the BSA. This plant community consists predominantly of ruderal, nonnative grassland species with scattered native forbs.

Plants within this habitat type include common horseweed (*Conyza canadensis*), fascicled tarweed (*Deinandra fasciculata*), tocalote (*Centaurea melitensis*), telegraph weed (*Heterotheca grandiflora*), Bermuda grass (*Cynodon dactylon*), wild oat (*Avena* spp.), and foxtail chess (*Bromus madritensis* ssp. *rubens*).

Ruderal Vegetation

Ruderal vegetation occurs throughout the BSA. This plant community consists predominantly of ruderal and unmaintained or escaped ornamental vegetation. While most of the ruderal vegetation in the BSA consists of nonnative grasses, it is differentiated from nonnative grassland due to the loss of a native seed bank, although some native "weedy" species may be present. Plants within this habitat type include Peruvian pepper tree (*Schinus molle*), tocalote, bull thistle (*Cirsium vulgare*), telegraph weed, perennial sow-thistle (*Sonchus arvensis*), field mustard (*Brassica rapa*), shortpod mustard (*Hirschfeldia incana*), Bermuda grass, wild oat, and foxtail chess.

In addition, coast live oak trees and western sycamore trees of various sizes are scattered within the junction of SR-241 and SR-91. These trees may be used as a resource by wildlife and are considered important to Caltrans and the CDFW.

Developed Areas

This "habitat" occurs throughout the BSA. Within the BSA, this habitat consists of nonporous surfaces such as existing paved roads and highways. Where vegetation is present, it consists of ornamental and ruderal vegetation. Where vegetation is not present, it consists of bare ground (e.g., regularly disturbed ground, pullouts).

3.1.3.2. COMMON ANIMAL SPECIES

Diverse wildlife species including special-status species are expected within the BSA due to the mosaic of habitats, which includes available water from the jurisdictional Santa Ana River and perennial (culvert outfall) water sources for wildlife. Appendix B includes the list of observed and detected wildlife species.

Other animal species not detected, but expected within the BSA or immediate vicinity include, but are not limited to, the following: western toad (*Anaxyrus boreas*), western skink (*Plestiodon skiltonianus*), southern alligator lizard (*Elgaria multicarinata*), gophersnake (*Pituophis catenifer*), killdeer (*Charadrius vociferus*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), Nuttall's woodpecker (*Picoides nuttallii*), northern flicker (*Colaptes auratus*), Pacific-slope flycatcher (*Empidonax difficilis*), barn swallow (*Hirundo rustica*), European starling (*Sturnus*

vulgaris), orange-crowned warbler (*Oreothlypis celata*), black-headed grosbeak (*Pheucticus melanocephalus*), North American deermouse (*Peromyscus maniculatus*), and striped skunk (*Mephitis mephitis*).

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Chapter 4. Results: Biological Resources, Discussion of Impacts, and Mitigation

4.1. Federally Listed/Proposed Plant Species

As shown in Chapter 2, Table 2.1, a total of seven of the 40 special-status plant species with the potential of occurring within the vicinity of the BSA are federally listed as threatened, endangered, or candidate species: Munz's onion, Braunton's milk-vetch, thread-leaved brodiaea, San Fernando Valley spineflower (candidate), slender-horned spineflower, Santa Ana River woollystar, and Gowen cypress. As noted in Table 2.1, there is no suitable habitat within the BSA for Braunton's milk-vetch (designated critical habitat and known occurrences are adjacent to the BSA), slender-horned spineflower, Santa Ana River woollystar, and Gowen cypress. Therefore, discussed in this section are the results of surveys, critical habitat, avoidance and minimization measures, Proposed Project impacts, compensatory mitigation, and cumulative impacts in relation to the Federal Endangered Species Act (FESA) for Munz's onion, Braunton's milk-vetch designated critical habitat adjacent, thread-leaved brodiaea, and San Fernando Valley spineflower.

4.1.1. Discussion of Munz's Onion

Munz's onion is a perennial bulbiferous herb that occurs in chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, and valley and foothill grassland. It is usually found in heavy clay soils from approximately 900 to 3,200 ft in elevation. This species is federally listed as endangered and is State-listed as threatened. It is also a CNPS CRPR 1B species.

4.1.1.1. SURVEY RESULTS

Botanical surveys conducted for this species in 2011 during the appropriate blooming period (March–May) and in August 2013 and May 2014 were negative. In addition, there is no designated critical habitat for Munz's onion in the BSA. The nearest known population of Munz's onion is at the junction of I-15 and Indian Truck Trail, several miles south of the BSA. Furthermore, based on focused special-status species survey results conducted for the Mountain Park Project in 2001 and 2003 (BonTerra 2005), results were negative for this special-status plant species in the recently added proposed slope-grading area outside of the original BSA. Therefore, this species is considered absent from the BSA.

4.1.1.2. CRITICAL HABITAT

In June 2005, the USFWS designated critical habitat for Munz's onion. All areas known to support populations of Munz's onion are considered by the USFWS as essential habitat for this species because they include features that are physically or biologically crucial to the conservation of the species. All known populations of Munz's onion except for one have been excluded from designation as critical habitat due to the locations being subject to HCPs and other conservation strategies that allow for the long-term management and conservation of the species. Only the area in the vicinity of Elsinore Peak in the Cleveland National Forest, totaling approximately 176 ac, is designated as critical habitat by the USFWS (USFWS 2005). There is no designated critical habitat for Munz's onion in the BSA.

4.1.1.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because this species is considered absent from the BSA, no avoidance and minimization efforts are required.

4.1.1.4. PROJECT EFFECTS

Because this species is considered absent from the BSA, the Proposed Project is not expected to affect this species. This is a determination of "No effect" on Munz's Onion.

4.1.1.5. MODIFICATION TO THE PROJECT TO MITIGATE EFFECTS

Because this species is considered absent from the BSA, no modifications to the Proposed Project are warranted.

4.1.1.6. CUMULATIVE EFFECTS

Because this species is considered absent from the BSA, it is unlikely that the Proposed Project would contribute to cumulative adverse effects to this species.

4.1.2. Discussion of Braunton's Milk-vetch

Braunton's milk-vetch is a perennial herb that occurs in CSS, chaparral, closed-cone coniferous forest, and valley and foothill grassland. It is usually found on granite, limestone, or gravelly clay soils in disturbed areas that range from 13 to 2,100 ft in elevation. This species is federally listed as endangered and is a CNPS CRPR 1B species.

4.1.2.1. SURVEY RESULTS

Botanical surveys conducted for this species in 2011 during the appropriate blooming period (March–July) and in August 2013 and May 2014 were negative. Therefore, the

species is considered absent from the BSA. The nearest known population of Braunton's milk-vetch was identified in the main channel of Coal Canyon in August 2003 in the State right-of-way for SR-91, but was impacted during subsequent flood events (communication with Karen Drewe, Caltrans Biologist). It is difficult to determine the complete distribution of Braunton's milk-vetch due to its need for heat or physical scarification for seeds to germinate. Furthermore, based on focused special-status species survey results conducted for the Mountain Park Project in 2001 and 2003 (BonTerra 2005), results were negative for this special-status plant species in the recently added proposed slope-grading area outside of the original BSA.

4.1.2.2. CRITICAL HABITAT

In December 2006, the USFWS designated critical habitat for Braunton's milk-vetch. There are six critical habitat units totaling approximately 3,300 ac found to be essential to the conservation of this species (USFWS 2006). The closest critical habitat unit is Unit 6, which is in the BSA but outside the disturbance limits for the project. Unit 6 is south of the City of Yorba Linda in Gypsum and Coal Canyons. It consists of 832 ac, 589 ac of which are in Chino Hills State Park and the Coal Canyon Ecological Reserve, with the remaining acreage on private land. This unit includes several plant locations that are part of a larger population complex. Unit 6 is in a relatively large area that is isolated from urban development and provides genetic connectivity among plants found at several of the locations. It is believed that this unit supports a large seed bank based on a post-fire germination that occurred in 2003.

4.1.2.3. AVOIDANCE AND MINIMIZATION EFFORTS

This species is considered absent from the BSA due to lack of suitable habitat; however, Braunton's milk-vetch designated critical habitat is adjacent to the BSA.

- The proximity of the Braunton's milk-vetch critical habitat will be conveyed to the engineering team so that measures can be taken to minimize the disturbance limits and potential indirect effects to the greatest extent possible. Steps taken during the final design phase will include reducing the lateral work limits to avoid sensitive habitat and designating construction staging areas in regions that have been previously disturbed or developed. All Proposed Project disturbance limits adjacent to critical habitat will be delineated as Environmentally Sensitive Area (ESAs) during construction.

- In conjunction with the final design and prior to site preparation, all sensitive species and special habitats within 300 ft of the Project Area shall be mapped on the grading plans by a qualified biologist. Sensitive and candidate species and special habitats shall be defined as:

    - Coastal California gnatcatcher
    - Designated critical habitat for Coastal California gnatcatcher
    - Thread-leaved brodiaea
    - Braunton's milk-vetch
    - Designated critical habitat for Braunton's milk-vetch
    - Least Bell's vireo
    - Southwestern willow flycatcher
    - Drainages and streambeds
    - Coastal sage scrub
    - Coast Live Oak Woodland

ETC Final EIR and Final EIS Measures B-8 and B-11 for CSS habitat and NCCP/HCP Construction Minimization Measure 6 are also applicable to Braunton's milk-vetch and its critical habitat.

- **ETC Final EIR and Final EIS Measure B-8:** *For the period covering all site preparation, grading and construction, a resource management coordinator shall monitor wildlife* [and plant] *habitat preservation to ensure that the ESAs and areas outside the right-of-way are not adversely impacted. The monitor shall be on site before, during, and after the completion of site preparation, grading and construction.*
- **ETC Final EIR and Final EIS Measure B-11:** *Prior to site preparation, grading and construction, TCA shall implement procedures for protecting sensitive and candidate species and special habitats* [particularly Braunton's milk-vetch critical habitat] *identified and mapped on grading plans, as required by Mitigation Measure B-10, during site preparation, grading, construction and maintenance activities by following Caltrans Environmentally Sensitive Area procedures.*
- **NCCP/HCP Construction Minimization Measure 6:** *CSS identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring biologist.*

4.1.2.4. PROJECT EFFECTS

Although the Proposed Project is not expected to directly impact any designated critical habitat for this species, the disturbance limits are immediately adjacent to Braunton's milk-vetch-designated critical habitat, and the Project may cause temporary indirect impacts to designated critical habitat during construction due to accumulated dust on the leaves of any Braunton's milk-vetch plants that may be present. This is a determination of "May affect, not likely to adversely affect" on Braunton's milk-vetch and its designated critical habitat.

4.1.2.5. MODIFICATION TO THE PROJECT TO MITIGATE EFFECTS

Because this species is considered absent from the BSA, no modifications to the Proposed Project are warranted.

4.1.2.6. CUMULATIVE EFFECTS

Because this species and designated critical habitat for this species is absent from the BSA, it is unlikely that the Proposed Project would contribute to cumulative effects to this species.

4.1.3. Discussion of Thread-Leaved Brodiaea

Thread-leaved brodiaea is a perennial, bulbiferous herb, which occurs in chaparral openings, CSS, valley and foothill grassland, cismontane woodland, and vernal pools, from approximately 80 to 2,850 ft in elevation. Populations of thread-leaved brodiaea are typically found on flat or gently sloping grassland areas with clay soils, surrounded by shrubland. This species is federally listed as threatened and State-listed as endangered. It is also a CNPS CRPR 1B species.

4.1.3.1. SURVEY RESULTS

Botanical surveys conducted for this species in 2011 during the appropriate blooming period (May–June) and in August 2013 and May 2014 were negative. There are no recorded populations of thread-leaved brodiaea in the Project Vicinity. Furthermore, based on focused special-status species survey results conducted for the Mountain Park Project in 2001 and 2003, results were negative for this special-status plant species in the recently added proposed slope grading area (3.6 ac) outside of the original BSA (BonTerra 2005). Therefore, this species is considered absent or unlikely within the BSA.

4.1.3.2. CRITICAL HABITAT

Critical habitat was designated for thread-leaved brodiaea on February 8, 2011. There is no designated critical habitat for thread-leaved brodiaea within the BSA.

4.1.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

The following measure will be incorporated to avoid and minimize impacts to thread-leaved brodiaea:

- Preconstruction surveys are recommended. If the species is found during preconstruction surveys, the measure below shall be conducted to avoid impacts to this species.
- Prior to clearing or construction, highly visible barriers will be installed around the protected zone of any thread-leaved brodiaea and designated as an ESA to be preserved to the extent feasible. The protected zone will extend 5 feet (ft) outside of the vegetation edge. No grading or fill activity of any type will be permitted within the ESA. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. No structure of any kind or incidental storage of equipment or supplies will be allowed within the ESA. All construction equipment will be operated in a manner so as to prevent accidental damage to nearby thread-leaved brodiaea. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where thread-leaved brodiaea are adjacent to planned grading activities.

4.1.3.4. PROJECT EFFECTS

Despite direct temporary and permanent effects on approximately 53 ac of chaparral openings, CSS, and grassland vegetation in the BSA, any potentially suitable habitat impacts may be minimal for this species. Because this species is considered absent or unlikely within the BSA, the Proposed Project is not expected to substantially impact this species. This is a determination of "May affect, not likely to adversely affect."

4.1.3.5. MODIFICATION TO THE PROJECT TO MITIGATE EFFECTS

Because this species is considered absent or unlikely present within the BSA, no modifications to the Proposed Project are warranted.

4.1.3.6. CUMULATIVE EFFECTS

Because this species is considered absent or unlikely present within the BSA, it is unlikely that the Proposed Project would contribute to cumulative adverse effects to this species.

4.1.4. Discussion of San Fernando Valley Spineflower

San Fernando Valley spineflower is an annual herb that occurs in coastal scrub and valley and foothill grassland, usually found in sandy soils. Elevations range from

approximately 450 to 3,660 ft. This species is a federal candidate and State-listed as endangered. It is also a CNPS CRPR 1B species.

4.1.4.1. SURVEY RESULTS

Botanical surveys conducted for this species in 2011 during the appropriate blooming period (April–June) and in August 2013 and May 2014 were negative. The only recorded observation of San Fernando Valley spineflower in the Project Vicinity is described as being in the hills near Santa Ana in 1902. Subsequent searches for this population have been unsuccessful. Therefore, this species is considered absent from the BSA. Furthermore, based on focused special-status species survey results conducted for the Mountain Park Project in 2001 and 2003 (BonTerra 2005), results were negative for this special-status plant species in the recently added proposed slope-grading area outside of the original BSA.

4.1.4.2. CRITICAL HABITAT

Because San Fernando Valley spineflower is a federal candidate species, no critical habitat has been designated at this time.

4.1.4.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because this species is considered absent from the BSA, no avoidance and minimization efforts are required.

4.1.4.4. PROJECT EFFECTS

Because this species is considered absent from the BSA, the Proposed Project is not expected to affect this species. This is a determination of "No effect" on San Fernando Valley spineflower.

4.1.4.5. MODIFICATION TO THE PROJECT TO MITIGATE EFFECTS

Because this species is considered absent from the BSA, no modifications to the Proposed Project are warranted.

4.1.4.6. CUMULATIVE EFFECTS

Because this species is considered absent from the BSA, it is unlikely that the Proposed Project would contribute to cumulative adverse effects to this species.

4.2. Federally Listed or Proposed Animal Species Occurrences

A total of 10 of the 74 special-status animal species with the potential of occurring in the vicinity of the BSA are federally listed as endangered or threatened species: San

Diego fairy shrimp, Quino checkerspot butterfly, Delhi Sands flower-loving fly, Riverside fairy shrimp, Santa Ana sucker, arroyo toad, western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, and CAGN.

As noted in Chapter 2, Study Methods, suitable habitat for the majority of these species is not present within the BSA. These include San Diego fairy shrimp, Quino checkerspot butterfly, Delhi Sands flower-loving fly, Riverside fairy shrimp, Santa Ana sucker, arroyo toad, western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo. However, southwestern willow flycatcher and least Bell's vireo may occasionally forage in the BSA. Therefore, the invertebrate species and the arroyo toad are not discussed further, and a finding of no effect is made. The aquatic species (Santa Ana sucker) and riparian bird species (western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo) would not be directly impacted since the portions of the Proposed Project on westbound SR-91 do not include major roadway alterations or any cut or fill. The work in these areas is limited to restriping of existing pavement along the SR-91 lanes and a shift of the median barrier to accommodate the alignment of the Proposed Project. Similarly, any riparian vegetation within the BSA is not expected to be used for breeding by southwestern willow flycatcher and least Bell's vireo but may be used for foraging.

The results of surveys, critical habitat, avoidance and minimization efforts, Project effects, modifications to the Project to mitigate effects, and cumulative effects for Santa Ana sucker, southwestern willow flycatcher, least Bell's vireo, and CAGN are discussed below.

4.2.1. Discussion of Santa Ana Sucker

The Santa Ana sucker is federally-listed as threatened. It is endemic to the Los Angeles, San Gabriel, and Santa Ana Rivers. A population on the Santa Clara River may be introduced. It is found in cool, flowing water of small to medium-size permanent streams.

4.2.1.1. SURVEY RESULTS

The Santa Ana sucker was not observed in the BSA during the 2011, 2013, or 2014 various field surveys, and there is no suitable habitat present for this species in the BSA. However, it was formerly present outside of the BSA in the Santa Ana River to the north and the Prado Basin to the northeast.

4.2.1.2. CRITICAL HABITAT

The Santa Ana sucker was listed in 2000. Critical habitat was first designated by the USFWS in 2005 and revised in 2010. There is no designated critical habitat for the sucker within the BSA, but critical habitat is present along the Santa Ana River to the north of the BSA.

4.2.1.3. PROJECT EFFECTS

There is some potential for the aquatic Santa Ana sucker to be indirectly impacted as a result of runoff from the Proposed Project. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Furthermore, chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked during construction and thereby have the potential to be transported via storm runoff into the Santa Ana River. During operation, the Proposed Project would result in an increase in impervious surface area and potentially an increase in total stormwater runoff to the Santa Ana River. This is a determination of "May affect, not likely to adversely affect" on the Santa Ana sucker and its designated critical habitat.

4.2.1.4. AVOIDANCE AND MINIMIZATION EFFORTS

Erosion and spill prevention measures during construction (which are strictly monitored and enforced) and standard water quality control measures that are included in the project design would greatly reduce this potential adverse effect. Furthermore, the potential Santa Ana sucker habitat in the potentially affected portion of the Santa Ana River has experienced little occupation by the species in recent years.

4.2.1.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because Santa Ana sucker is not expected to occur in the BSA, the Proposed Project is not expected to this species. Therefore, modifications to the Project to mitigate effects are not warranted.

4.2.1.6. CUMULATIVE EFFECTS

Because this species is currently unknown within the BSA and adjacent areas, the Proposed Project is not expected to contribute to the cumulative effects to this species.

4.2.2. Discussion of Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is listed as endangered by the State and as a threatened species by the USFWS. This cuckoo is a migratory songbird that nests and forages in large, dense riparian habitats in shallow water habitats with cottonwood trees particularly important for foraging. Western yellow-billed cuckoo usually defend very large breeding territories ranging in size from 25 to 99 ac. In Southern California, the breeding season of the western yellow-billed cuckoo generally extends from May through September. The western yellow-billed cuckoo was listed as threatened by the USFWS in October 2014 (Federal Register [FR] 79(192):59992–60038; USFWS 2014b).

4.2.2.1. Survey Results

The western yellow-billed cuckoo was not observed in the BSA during the 2011, 2013, or 2014 various field surveys, and there is a limited amount of suitable foraging habitat present for this species in the BSA. No suitable nesting habitat is located in the BSA; however, it is present outside of the BSA in the Santa Ana River to the north and the Prado Basin to the northeast.

4.2.2.2. Critical Habitat

Critical habitat was designated in August 2014 by the USFWS for the western population segment of the yellow-billed cuckoo (FR 79[158]:48548–48652; USFWS 2014a) with the closest critical habitat approximately 4 mi northeast in the Prado Basin and a portion of the Santa Ana River. There is no designated critical habitat for western yellow-billed cuckoo within the BSA.

4.2.2.3. Project Effects

The Proposed Project is not expected to directly or indirectly affect any western yellow-billed cuckoo. Direct effects to this species are not expected since this species is not anticipated to occur within the BSA due to lack of suitable nesting habitat and limited (unlikely) foraging opportunities. Indirect project effects (noise, lighting, and dust) from construction and operation in the freeway median of an already busy facility, and thus very minor increases in temporary noise levels are not expected to change any potential habitat uses by this species in the vicinity of the BSA. For example, the *Noise Study Report* (CH2M Hill 2015) for the Project found that noise levels in the Canyon RV Park adjacent to the existing freeway are expected to increase by 1 A-weighted decibel (dBA) or less when compared to the No Build Condition. Overall, the presence of higher quality foraging habitat in the Prado Basin and the Santa Ana River make it unlikely that western yellow-billed cuckoo would be

affected by the Project. This is a determination of "No effect" on western yellow-billed cuckoo.

4.2.2.4. AVOIDANCE AND MINIMIZATION EFFORTS

Because no western yellow-billed cuckoo were observed in the BSA, no suitable nesting habitat is located in the BSA, and no foraging opportunities occur in the BSA, this species is not expected in the BSA. Therefore, no avoidance or minimization efforts are warranted.

4.2.2.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because western yellow-billed cuckoo is not expected to occur in the BSA, the Proposed Project is not expected to directly or indirectly affect this species. Therefore, modifications to the Project to mitigate effects are not warranted.

4.2.2.6. CUMULATIVE EFFECTS

Because the Proposed Project is located within or adjacent to State right-of-way for an existing highway and because of the lack of suitable nesting and foraging habitat for western yellow-billed cuckoo in the BSA, the Proposed Project is not expected to contribute to the cumulative effects to this species.

4.2.3. Discussion of Southwestern Willow Flycatcher

The southwestern willow flycatcher is listed as an endangered species by State and federal agencies. This flycatcher is a migratory songbird that typically nests and forages in dense riparian habitats with a patchy understory near surface water or saturated soil. Willow flycatchers usually defend breeding territories ranging in size from 2.7 to 5.7 ac (Sogge et al. 2010). In Southern California, the breeding season of the southwestern willow flycatcher generally extends from early-May with departures from the territory in mid-August to early-September.

The southwestern willow flycatcher was listed as endangered by the USFWS in 1995. In 1997, the USFWS designated critical habitat and re-designated critical habitat in 2005 (FR 70:60886–61009; USFWS 2005a).

4.2.3.1. SURVEY RESULTS

The southwestern willow flycatcher was not observed in the BSA during the 2011, 2013, or 2014 various field surveys, and there is a limited amount of suitable foraging habitat present for this species in the BSA. No suitable nesting habitat is located in the BSA, but is present outside of the BSA in the Santa Ana River to the north and the Prado Basin to the northeast.

4.2.3.2. CRITICAL HABITAT

In 1997, the USFWS designated critical habitat and re-designated critical habitat in 2005 for the southwestern willow flycatcher (FR 70:60886–61009; USFWS 2005a). The closest critical habitat to the BSA is approximately 6.5 mi northeast or 1.4 mi northeast of the Prado Dam.

4.2.3.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because no southwestern willow flycatcher were observed in the BSA, no suitable nesting habitat is located in the BSA, and there is limited foraging opportunity in the BSA, there is a low probability for occurrence in the BSA. Nevertheless, the following measure will be incorporated to avoid and minimize impacts to migrating southwestern willow flycatcher.

- Prior to vegetation clearing or construction within the species foraging habitat areas during the nesting period, a qualified biologist will conduct a preconstruction survey to identify the locations of any individuals. If foraging individuals are found within the vegetation-clearing area during the breeding season, clearing will be delayed until the species are absent. Per the Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) construction minimization measures, outside the breeding season, the monitoring biologist will flush NCCP/HCP identified species (including southwestern willow flycatcher) from the area, prior to brush-clearing and earth-moving activities. No additional avoidance and minimization efforts are warranted.

4.2.3.4. PROJECT EFFECTS

The Proposed Project is not expected to directly or indirectly impact any southwestern willow flycatcher. Direct impacts to this species are not expected since this species is not anticipated to occur within the BSA due to lack of suitable nesting habitat and limited foraging opportunities. Indirect project impacts (noise, lighting, and dust) from construction and operation in the freeway median of an already busy facility, and thus very minor increases in temporary noise levels, are not expected to substantially change any potential habitat uses by this species in the vicinity of the BSA, including potential nesting areas along the Santa Ana River and in the Prado Basin. Lighting from advance signage would be minimal and there would not be spillover to areas outside Caltrans right-of-way. Lighting levels would be consistent with the existing condition. For example, the *Noise Study Report* (CH2M Hill 2015) for the Project found that noise levels in the Canyon RV Park adjacent to the existing freeway are expected to increase by 1 dBA or less when compared to the No Build

Condition. Overall, the presence of higher quality foraging habitat in the Prado Basin and the Santa Ana River make it unlikely that southwestern willow flycatcher would be substantially affected by the Project. There is an incremental probability that the Proposed Project may temporarily redirect foraging southwestern willow flycatcher away from the BSA during construction. With the implementation of avoidance and minimization measures and existence of more suitable habitat in the nearby Santa Ana River and Prado Basin, the loss of potentially suitable foraging habitat would have a minimal or no effect on the southwestern willow flycatcher. This is a determination of "May affect, not likely to adversely affect."

4.2.3.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because there is no suitable nesting habitat and there is a low probability of southwestern willow flycatcher occurring in the BSA, the Proposed Project is not expected to directly impact this species with implementation of the Avoidance and Minimization measures. Therefore, modifications to the Project to mitigate effects are not warranted.

4.2.3.6. CUMULATIVE EFFECTS

Because the Proposed Project is located within or adjacent to State right-of-way for an existing highway and because of the lack of suitable nesting habitat and limited foraging habitat for southwestern willow flycatcher in the BSA, the Proposed Project is not expected to contribute to the cumulative effects to this species.

4.2.4. Discussion of Least Bell's Vireo

The least Bell's vireo was listed as an endangered species by State and federal agencies in 1980 and 1986, respectively, and critical habitat was designated in 1994 (USFWS 1986, 1994). The least Bell's vireo is a small migratory songbird that nests in Southern California. This species is a summer resident of Southern California and breeds in willow thickets and other dense, low riparian growths in lowlands and lower portions of canyons.

4.2.4.1. SURVEY RESULTS

The least Bell's vireo was not observed in the BSA during the 2011, 2013, or 2014 various field surveys, and there is a limited amount of suitable foraging habitat present for this species in the BSA. No suitable nesting habitat is located in the BSA, but is present outside of the BSA in the Santa Ana River to the north and the Prado Basin to the northeast.

4.2.4.2. CRITICAL HABITAT

In 1994, approximately 38,000 ac were designated as critical habitat for least Bell's vireo (FR 59(22):4845–4867; USFWS 1994). The critical habitat occurs in 10 areas throughout Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties. The closest critical habitat to the BSA is approximately 6 mi northeast in the Prado Basin.

4.2.4.3. AVOIDANCE AND MINIMIZATION EFFORTS

Because no least Bell's vireo were observed in the BSA, no suitable nesting habitat is located in the BSA, and there is limited foraging opportunity in the BSA, there is a low probability for occurrence in the BSA. Nevertheless, the following measure will be incorporated to avoid and minimize impacts to least Bell's vireo.

- Prior to vegetation clearing or construction within the species foraging habitat areas during the nesting period, a qualified biologist will conduct a preconstruction survey to identify the locations of any individuals. If foraging individuals are found within the vegetation-clearing area during the breeding season, clearing will be delayed until the species are absent. Per the NCCP/HCP construction minimization measures, outside the breeding season, the monitoring biologist will flush NCCP/HCP identified species (including least Bell's vireo) from the area, prior to brush-clearing and earth-moving activities. No additional avoidance and minimization efforts are warranted.

4.2.4.4. PROJECT EFFECTS

The Proposed Project may directly and indirectly impact least Bell's vireo. Direct impacts to this species are expected due to loss of a small amount (approximately 1 ac of chaparral) of potential foraging habitat within the BSA; however, there is a lack of suitable nesting habitat. Indirect project impacts (noise, lighting, and dust) from construction and operation in the freeway median of an already busy facility, and thus very minor increases in temporary noise levels, are not expected to substantially change any potential habitat uses by this species in the vicinity of the BSA, including known nesting areas along the Santa Ana River and in the Prado Basin. Lighting from advance signage would be minimal and there would not be spillover to areas outside Caltrans right-of-way. Lighting levels would be consistent with the existing condition.

The *Noise Study Report* (CH2M Hill 2015) for the Project found that noise levels in the Canyon RV Park adjacent to the existing freeway are expected to increase by 1

dBA or less when compared to the No Build Condition. Overall, the presence of higher quality foraging habitat in the Prado Basin and the Santa Ana River make it unlikely that least Bell's vireo would be substantially affected by the Project. Direct effects to potential foraging habitat are expected, and there is an incremental probability that the Proposed Project may temporarily redirect foraging least Bell's vireo away from the BSA during construction. With the implementation of avoidance and minimization measures and existence of more suitable habitat in the nearby Santa Ana River and Prado Basin, the loss of potentially suitable foraging habitat would have a minimal or no effect on least Bell's vireo. This is a determination of "May affect, not likely to adversely affect."

Based on the most recent available survey data (2012), the closest least Bell's vireo individuals were found more than 2,000 ft away from the proposed pile-driving locations for the connector bridges and approximately 500 ft away from the construction access route at Coal Canyon Undercrossing. The maximum noise level associated with pile driving for the bridges would be less than 70 dBA at the 2012 locations, which would be similar to the existing noise levels associated with traffic on SR-91.

The Proposed Project may utilize vibratory pile driving to construct a ramp from the Coal Canyon Undercrossing into the median of SR-91 to allow construction vehicle access. This activity would be short-term. The closest least Bell's vireo individuals were found approximately 1,000 ft from this location in 2012.

Measures included as part of the Proposed Project require shielded construction lighting to avoid impacts to wildlife.

4.2.4.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

Because there is no suitable nesting habitat and there is a low probability of least Bell's vireo occurring in the BSA, the Proposed Project is not expected to directly impact this species with implementation of the Avoidance and Minimization measures. Therefore, no modifications to the Project to mitigate effects are warranted.

4.2.4.6. CUMULATIVE EFFECTS

Because the Proposed Project is located within or adjacent to State right-of-way for an existing highway and because of the lack of suitable nesting habitat and limited foraging habitat for least Bell's vireo in the BSA, the Proposed Project is not expected to contribute to the cumulative effects to this species.

4.2.5. Discussion of Coastal California Gnatcatcher

The CAGN is a nonmigratory songbird that typically nests and forages in moderately dense stands of CSS below 2,500 ft in Southern California. CAGN usually defend breeding territories ranging in size from 2 to 14 ac and occupy home ranges that vary in size from 13 to 39 ac. The breeding season of the CAGN generally extends from February 15 through July 15, but can occur to September 1. After the chicks have fledged, juveniles may remain closely associated with their parents for up to several months and may disperse up to 6.2 mi from their natal territory (Atwood and Bontrager 2001).

The CAGN was listed as threatened by the USFWS in March 1993. On December 19, 2007, the USFWS designated 197,303 ac as revised final critical habitat (72 FR 72010). Appendix B shows the location of designated critical habitat relative to and within the BSA.

4.2.5.1. SURVEY RESULTS

Focused surveys were conducted by LSA Biologists Mr. Erickson, Mr. Krieg, and Ms. Quon between April 14 and June 9, 2011, to determine the presence of CAGN within the BSA (see Appendix C). One pair of CAGN and one lone male were found in two locations, as illustrated in Appendix B. One location consisted of a lone male located just outside of the BSA on the west side of SR-241, approximately 2,000 ft south of the connector on-ramp to SR-91 (Sheet 3 of Appendix G). The other location was in the median of the junction of SR-241 and SR-91 (Sheets 4 and 6 of Appendix G). This location consisted of a pair of adults who successfully hatched six young from two nests. Although surveys were concluded before the second nest had fledged, all of the young in the first nest fledged successfully. At least one CAGN was observed in this location during plant surveys conducted in 2013. Although the age and sex of the CAGN were not determined at that time, this observation demonstrates the median at the north end of SR-241 is an established territory that continues to be used. No CAGN were detected along SR-91 in the vicinity of the Proposed Project.

No CAGN were found in the BSA during focused surveys conducted in 1989 and 1990, prior to construction of SR-241. At that time, one pair of CAGN was known to be present nearby, in Gypsum Canyon.

The CSS within the CAGN-designated critical habitat contains constituent elements and is, therefore, subject to consultation provisions under FESA. In addition to CSS, the chaparral and nonnative grassland vegetation communities also contain

constituent elements of CAGN critical habitat. Although chaparral and nonnative grassland are typically not suitable for nesting CAGN, they may be used for foraging and dispersal and are, therefore, also subject to consultation provisions under FESA.

4.2.5.2. CRITICAL HABITAT

In 2007, the USFWS designated final critical habitat for the CAGN (FR 72(243): 72010–72213; USFWS 2007). Critical habitat occurs within the BSA. On February 7, 2000, approximately 513,650 ac in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties were designated as critical habitat for the CAGN (65 FR 63680). New boundaries of critical habitat totaling 495,795 ac were proposed in April 2003 (68 FR 20228). On December 19, 2007, the USFWS designated 197,303 ac as revised final critical habitat (72 FR 72010). This revised final rule excludes lands within approved HCP areas, relieving additional regulatory burden on property owners who might be imposed upon by critical habitat designation. Appendix G shows the location of designated critical habitat relative to and within the BSA.

4.2.5.3. AVOIDANCE AND MINIMIZATION EFFORTS

The avoidance and minimization measures from the NCCP/HCP will be implemented to avoid and minimize impacts to CAGN including those for noise, vibration, and dust impacts. Furthermore, following consultation with the USFWS, any additional measures in the new Biological Opinion regarding designated CAGN critical habitat will also be implemented. Finally, the measures below will be implemented including the lighting measure for any nighttime work.

- Prior to the commencement of grading operations or other activities involving disturbance of coastal sage scrub (CSS) or areas of designated California gnatcatcher (CAGN) critical habitat (with constituent elements), a survey will be conducted to locate CAGN within 100 ft of the outer extent of projected soil disturbance activities, and the locations of any such species will be clearly marked and identified on the construction/grading plans. This buffer should be clearly marked in the field by construction personnel under the guidance of the biologist. Construction or clearing will not be conducted within the project disturbance limits adjacent to the 100 ft buffer until the biologist determines that the young have fledged or the nest is no longer active.
- Prior to clearing or construction, visible barriers will be installed around CSS and designated CAGN critical habitat (with constituent elements) adjacent to the Project footprint to designate ESAs to be preserved. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction

activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated in a manner so as to prevent accidental damage to nearby preserved areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is adjacent to planned grading activities.

- A qualified biologist will monitor all construction activities for the duration of the Proposed Project in areas adjacent to ESA boundaries to flush out any wildlife species present prior to construction and to ensure that vegetation removal, best management practices (BMPs), ESAs, and all avoidance and minimization measures are properly followed.
- Shielded lighting will be used for any nighttime construction adjacent to CSS within CAGN-designated critical habitat to avoid and minimize artificial night-lighting effects.
- **ETC Final EIR and Final EIS Measure B-25:** *During site preparation and grading, the F/ETCA shall phase operations around important habitat areas to allow for completion of nesting and breeding activities for the CAGN and raptor species occurring in oak woodland. ~~as well as willow and sycamore forested woodlands.~~ This measure will be conducted and overseen by a qualified biologist.*
- **ETC Final EIR and Final EIS Measure B-27:** *Grading and construction activities shall be redirected temporarily around any nesting sites for a distance of 500 ft for candidate and listed species of birds and at a distance of 1,000 ft for raptors during nesting and breeding seasons. ~~In the event that a coyote, bobcat, or mountain lion den is located, grading and construction operations shall be redirected around the den for a distance of 1,000 ft~~. The nesting sites ~~and dens~~ should be resurveyed toward the end of the breeding seasons of these species to verify completion of the breeding cycle. Nests ~~and dens that will be removed due to ETC~~ must be removed during the nonbreeding season only.*

4.2.5.4. PROJECT EFFECTS

The following is in justification for determinations of "May affect, likely to adversely affect" for the CAGN and "May affect, not likely to adversely affect" for designated critical habitat for CAGN. Table 4.1 shows the amount of CAGN-occupied habitat and designated CAGN critical habitat that would be permanently and temporarily impacted by the Proposed Project for areas within and outside of the NCCP/HCP Plan Area.

Table 4.1: Potential Effects on Coastal California Gnatcatcher Occupied Habitat and Designated Critical Habitat Within and Outside the NCCP/HCP Plan Area[1]

Coastal California Gnatcatcher Habitat[1]		Within the NCCP/HCP Plan Area[4]				Outside the NCCP/HCP Plan Area			
		Within Caltrans Right-of-Way		Outside Caltrans Right-of-Way		Within Caltrans Right-of-Way		Outside Caltrans Right-of-Way	
		Temporary Acres	Permanent Acres	Temporary Acres	Permanent Acres	Temporary Acres	Permanent Acres	Temporary Acres	Permanent Acres
Within 1994 Biological Opinion Impact Area	**Occupied Habitat**								
	Coastal Sage Scrub	11.47	2.61	0.00	0.00	0.00	0.00	0.00	0.00
	Chaparral	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Nonnative Grassland	0.38	0.37	0.00	0.00	0.00	0.00	0.00	0.00
	Total Occupied Habitat	**11.85**	**2.98**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Outside 1994 Biological Opinion Impact Area	**Designated Critical Habitat[3]**								
	Coastal Sage Scrub	2.60	1.34	0.04	0.39	0.00	0.00	0.00	0.00
	Chaparral	0.076[5]	0.11	0.004[5]	0.17	0.18	0.00	0.00	0.00
	Nonnative Grassland	4.85	0.96	0.00	0.00	0.87	0.00	0.00	0.00
	Oak Woodland[2]	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
	Ruderal[2]	3.12	3.51	0.00	0.00	0.58	0.00	0.00	0.00
	Developed[2]	2.06	13.24	0.00	0.00	6.33	1.18	0.00	0.00
	Total Designated Critical Habitat[2]	**12.71**	**19.16**	**0.09**	**0.56**	**7.96**	**1.18**	**0.00**	**0.00**
Grand Total		**24.56**	**22.14**	**0.09**	**0.56**	**7.96**	**1.18**	**0.00**	**0.00**

[1] This table represents vegetation in the median of SR-241 (within the NCCP/HCP Plan Area) where a CAGN breeding territory was found in 2011 and the designated CAGN critical habitat at the east end of the Project along SR-91.
[2] Oak Woodland, Ruderal, and Developed habitat classifications are also within Designated Critical Habitat, but are not considered suitable for use by CAGN.
[3] CAGN were not found in designated CAGN critical habitat during the 2011 focused surveys, thus the acreage areas are shown under separate headings.
[4] Some of the NCCP/HCP Plan Area also includes the NCCP/HCP Existing Use Area along SR-91 (i.e., temporary impacts to coastal sage scrub include 0.03 ac).
[5] Acreage number is shown to the thousandth place (0.000) and is not a typographical error.

ac = acre/acres
CAGN = California gnatcatcher
Caltrans = California Department of Transportation
NCCP/HCP = Natural Community Conservation Plan/Habitat Conservation Plan
SR-241 = State Route 241
SR-91 = State Route 91

NCCP/HCP Plan Areas

Direct and indirect impacts to CAGN and designated CAGN critical habitat are expected to occur as a result of Project implementation. The CAGN is likely to occur within or near the disturbance limits at the time of construction because there is a known territory in Coal Canyon approximately 65 ft south of SR-91. Vibratory pile driving at Coal Canyon Undercrossing would occur approximately 300 ft from this location and would generate a maximum noise level of approximately 79 dBA, which would be above the background traffic noise level on SR-91. With implementation of a barrier (temporary construction barrier or a noise curtain surrounding the pile driver) and assuming continuous pile driving for 30 minutes in an hour, noise levels from pile driving would be lower than traffic noise on SR-91.

Take of CAGN within the NCCP/HCP Plan Area is expected to occur through the permanent loss of approximately 2.98 ac (CSS [2.61 ac], nonnative grassland [0.37 ac]) and temporary loss of approximately 11.85 ac (CSS [11.47 ac], nonnative grassland [0.38 ac]) of occupied habitat in the median of the junction of SR-241 and SR-91. Take of designated CAGN critical habitat within the NCCP/HCP Plan Area, regardless of occupation, is also expected to occur through the permanent loss of approximately 19.72 ac and the temporary loss of approximately 12.80 ac, which includes permanent loss of approximately 0.56 ac and the temporary loss of approximately 0.09 ac on the County parcel south of SR-91 (see Table 4.1, below; and Appendix G, Biological Resources and Project Effects). This critical habitat area is along SR-91 at the eastern end of the Project.

As a covered project, the NCCP/HCP Implementation Agreement (1996, page 33) specifies take authorization within the right-of-way of the SR-241 and SR-91 corridors, which includes the known territory location of the CAGN within the Project Area.

Additionally, the NCCP/HCP Implementation Agreement (page 127) specifically states that take authorization for F/ETCA, as noted in the Biological Opinion (1-6-94-F-17) for the ETC, includes its junction with SR-91. However, the Proposed Project is expected to go through the Section 7 consultation process between Caltrans and the USFWS to comply with FESA in order to ensure consistency with these documents. Specifically, the USFWS verification and acceptance of the mitigation components for impacts to designated critical habitat within NCCP/HCP areas shall occur during Section 7 consultation since the Implementation Agreement and the Biological Opinion were completed prior to designation of CAGN critical habitat.

Conditions in the NCCP/HCP agreement specific to CAGN include a commitment to fund cowbird trapping, construct wildlife corridors, and undertake 314 ac of vegetation restoration on ETC sideslopes and 318 ac of CSS restoration within the NCCP/HCP Reserve system.

Non-NCCP/HCP Plan Areas

Direct Effects

Impacts to non-NCCP/HCP areas within Caltrans right-of-way would be covered through mitigation measures in the new Biological Opinion since CAGN critical habitat was not yet designated and was, therefore, not part of the original Biological Opinion.

Temporary impacts are the maximum extent expected for construction staging and access.

In addition, potential direct temporary impacts due to construction activities may occur, including the increased exposure of CAGN to vibration, dust, and human presence. Construction-related noise, vibration, and dust have the potential to adversely impact CAGN in the immediate vicinity of construction activities, especially as a result of pile driving. However, implementation of the proposed minimization measures would substantially reduce those potential adverse impacts.

Indirect Effects

Potential indirect effects on CAGN habitat due to the lingering effects of dust, erosion, and sedimentation have the potential to adversely impact CAGN in the immediate vicinity of construction areas. However, implementation of the proposed minimization measures would substantially reduce those potential adverse impacts

Interrelated and/or Interdependent

Effects of the SR-91 Widening Project in the vicinity of the SR-241 interchange were fully considered and mitigated through the review process for that project (see Cumulative Effects).

Incidental Take

Approximately 9.14 ac of CAGN critical habitat within the Caltrans right-of-way in non-NCCP/HCP Plan areas will be permanently or temporarily impacted by the project (Table 4.1). The areas involved are actually of marginal quality for CAGN, but do have the potential to provide for at least occasional use by the species. Incidental take of habitat used by up to three pairs of CAGN is permitted by this BA.

Critical Habitat

Direct and indirect impacts to designated CAGN critical habitat are expected to occur as a result of Project implementation (see Appendix G, Biological Resources and Project Effects). Designated CAGN critical habitat is along SR-91 at the eastern end of the Project Area on the north and south sides of SR-91. There are two critical habitat areas in the BSA: one area begins approximately 1 mi east of the junction of SR-241 and SR-91 and continues east of the Project Area with the north portion outside of the NCCP/HCP Plan Area, while the second area overlaps the south side of the Project Area near the eastern edge of the Project Area and is within the NCCP/HCP Plan Area and a small portion of the NCCP/HCP Existing Use Area (less than 1.5 ac).

Regardless of occupation, an effect on designated CAGN critical habitat on non-NCCP/HCP land is expected to occur on 7.96 ac (temporary impacts) and 1.18 ac (permanent impacts) of critical habitat within Caltrans right-of-way. However, all of the 1.18 ac of permanent impacts to designated critical habitat as mapped by USFWS is to areas that are developed. No impacts to CAGN critical habitat on the County of Orange parcel are anticipated.

4.2.5.5. MODIFICATIONS TO THE PROJECT TO MITIGATE EFFECTS

NCCP/HCP Plan Areas

The NES, Section 4.1.2.4, includes a description of the compensatory mitigation for CSS habitat, which also applies to compensatory mitigation for CAGN. That text is included here.

There are three relevant reference documents for the County of Orange, Central and Coastal Subregion NCCP/HCP, Parts I and II: the NCCP/HCP plan itself (of the same title) (County 1996a); the Joint EIR (Final EIR 553) and the EIS (Final EIS 96-26) (County 1996b); and the NCCP/HCP Implementation Agreement (County 1996c). As noted in the Implementation Agreement (page 34) and the Final EIR/EIS (pages 7–142), mitigation for all of the TCA Transportation Corridors in the Central and Coastal Subregional Plan area was comprehensive and included $6.615 million in funds and 651 ac of CSS revegetation, restoration, and preservation for three transportation corridors, including SR-241. The following components were specifically for the ETC, including the connection with SR-91.

- Contribution of $2,015,000 to the NCCP/HCP Conservation Fund
- Revegetation and restoration of 384 ac

- Maintenance of 25 cowbird traps
- Construction of 5 wildlife undercrossings and 26 wildlife culverts

As described in Parts I and II of the NCCP/HCP documents, all development activities addressed by the NCCP/HCP are considered fully mitigated under the NCCP Act, the California Endangered Species Act (CESA), and FESA for impacts to habitat occupied by listed and other species identified by the NCCP/HCP documents. Therefore, compensatory mitigation for Project impacts within the NCCP/HCP Plan Areas has already been completed pursuant to the NCCP Implementation Agreement; however, USFWS verification and acceptance of the mitigation components for impacts to CSS shall occur during Section 7 consultation.

The NCCP/HCP states no amendment is needed to the NCCP/HCP as long as the infrastructure allowed has no Incidental Take beyond that described and permitted for in the NCCP/HCP. However, coordination with the USFWS is required to ensure the Proposed Project is consistent with the NCCP/HCP.

Non-NCCP/HCP Plan Areas

Temporary impacts (approximately 7.96 ac, includes 6.33 ac of Developed area) and permanent impacts (1.18 ac of Developed area) to designated CAGN critical habitat are expected outside of the NCCP/HCP Plan Area. For CSS impacts to CAGN-occupied habitat or within CAGN-designated critical habitat, the proposed minimum mitigation ratio is 2:1 for permanent impacts and 1:1 for temporary impacts. This mitigation will be evaluated through coordination between Caltrans, the F/ETCA, and the USFWS. Specifically, federal Section 7 consultation between Caltrans and the USFWS will be necessary to consider potential adverse impacts to designated CAGN critical habitat within the BSA.

As of December 2014, TCA has approximately 15 ac of CSS and cactus scrub mitigation land available at their Strawberry Farms habitat restoration area in the City of Irvine. Caltrans proposes that impacts to CSS beyond those that were included in the original Biological Opinion will be mitigated at a ratio of 2:1 for permanent impacts and 1:1 for temporary impacts. A USFWS approved habitat restoration plan was prepared for this area (NewFields 2011). During email correspondence with TCA on February 9, 2011 (prior to project initiation), Jonathan Snyder of USFWS conceptually agreed to the use of the Strawberry Farms area to offset impacts to CSS and cactus scrub associated with future TCA projects in the County of Orange. It is

proposed that the Strawberry Farms mitigation area be used as mitigation for the Proposed Project.

The Strawberry Farms mitigation area is in the Quail Hill Preserve, part of the Coastal Reserve of the Central and Coastal NCCP/HCP, and is contiguous with Bommer and Shady Canyon, adjacent open space land including the Irvine Ranch National Natural Landmark, and a portion of the Central and Coastal NCCP/HCP. Bommer and Shady Canyon connect with the Laguna Coast Wilderness Park and Crystal Cove State Park. Strawberry Farms includes habitat for rare species such as coastal cactus wren and potential habitat for CAGN and many-stemmed dudleya (*Dudleya multicaulis*) (NewFields 2011).

4.2.5.6. CUMULATIVE EFFECTS

NCCP/HCP Plan Areas

The Central and Coastal NCCP/HCP (County 1996a) was conceived, developed, and is being implemented specifically to address direct, indirect, permanent, and temporary impacts to species and habitats (including CAGN) within central and coastal Orange County, resulting from the build out of planned land use and infrastructure, including the Proposed Project. The NCCP/HCP ensures that the cumulative impacts to those species identified are effectively mitigated by assembling the Reserve System. According to the NCCP/HCP Final EIR/EIS (County 1996b; pages 9–16), the Central/Coastal NCCP/HCP is directed specifically to address reasonably foreseeable cumulative impacts of incidental take of CSS habitat on the target/Identified Species and species dependent on or associated with CSS and covered habitat at a very large subregional scale. Therefore, cumulative impacts for NEPA and California Environmental Quality Act (CEQA) purposes are addressed at the subregional level as described in Chapters 5 through 8 of the NCCP/HCP Final EIR/EIS (County 1996b).

The SR-91 Corridor Improvement Project (CIP) is currently under construction and the ultimate phase of this project will impact CAGN in the Project Area (FWS-ORJWRIV-08B0733-IIF0547; November 30, 2011). The impacts for the SR-91 CIP in Orange County overlap the impact areas for the Proposed Project in the NCCP/HCP Plan Area.

Other than the SR-91 CIP and the ETC project, no known past impacts to NCCP/HCP Plan Areas have occurred within the Project Area. No reasonably foreseeable projects will occur in the Project Area because the Irvine Company permanently dedicated the

final 2,500 ac of land within the City of Anaheim's Mountain Park Specific Plan to the County of Orange as permanent open space in August 2014.[1]

Non-NCCP/HCP Plan Areas

A new Biological Opinion following Section 7 consultation will determine the mitigation measures for any CAGN use areas in the non-NCCP/HCP Plan Area, as well as mitigation measures for designated CAGN critical habitat since critical habitat was not part of the original Biological Opinion; therefore, the Proposed Project is not expected to contribute to the cumulative impacts to CAGN. Because most portions of the Project Area, including all permanent impacts to vegetation, are included in the NCCP/HCP Plan Area, the Proposed Project is not expected to contribute to cumulative impacts to CAGN within these areas.

The SR-91 Eastbound Lane Addition Project (SR-241 to SR-71) impacted CAGN in the Project Area. The SR-91 CIP will also impact CAGN in the Project Area (FWS-ORJWRIV-08B0733-IIF0547). The impacts of the SR-91 CIP in Orange County overlap the impact areas for the Proposed Project in the Non-NCCP/HCP Plan Area.

[1] City of Anaheim, Susan Kim, Acting Principal Planner, April 13, 2015. Response letter to the Notice of Preparation/Notice of Intent for the SR-241/SR-91 Express Lanes Connector Supplemental EIR/EIS.

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Chapter 5. Conclusions and Determination

5.1. Conclusions

This BA was prepared in accordance with legal requirements found in Section 7 (a)(2) of FESA (16 United States Code (USC) 1536[c]) and with FHWA and the Caltrans regulations, policies, and guidance. Implementation of the Proposed Project would result in the direct removal of native and nonnative vegetation, including nonnative grassland, CSS, and chaparral.

Avoidance and minimization measures for potential indirect effects to Braunton's milk-vetch and Braunton's milk-vetch designated critical habitat (with constituent elements) adjacent to the BSA shall be determined through coordination among Caltrans, the F/ETCA, and the USFWS.

Indirect effects on potential foraging habitat for southwestern willow flycatcher and least Bell's vireo may occur within the BSA. Avoidance and minimization measures are proposed, but shall be implemented as determined through coordination among Caltrans, the F/ETCA, and the USFWS.

Direct and indirect effects to CAGN are expected to occur as a result of project implementation. CAGN, a federally listed as threatened species, is likely to occur within or near the project construction limits. Therefore, take of CAGN occupied CSS, CAGN designated critical habitat, and other potential CAGN habitat would occur as a result of project implementation. Compensatory mitigation for the project's effects on CAGN in the NCCP Plan Area has already been completed pursuant to the NCCP Implementation Agreement. In addition, mitigation for CAGN designated critical habitat (with constituent elements) and areas outside of the NCCP limited to temporary impact areas, which will be revegetated following completion of the project, shall be determined through coordination among Caltrans, the F/ETCA, and the USFWS.

5.2. Determination

Table 5.1, below, shows the federally listed species and any critical habitat associated with the Proposed Project and the preliminary effects determination. The six species, and/or their critical habitat (as applicable), which are known from or are in the vicinity of the BSA, will be part of the Section 7 consultation (i.e., thread-leaved brodiaea, Braunton's milk-vetch, Santa Ana sucker, southwestern willow flycatcher, least Bell's vireo, and CAGN). The effects determination for these species will be finalized in the USFWS' Biological Opinion.

Table 5.1: Preliminary Effects Determination for Federally Listed Species

Listed Species and Critical Habitat[1]	Federal Status	Rational	Effects Determination[2, 3]
Listed Species			
Braunton's milk-vetch *Astragalus brauntonii*	Endangered	No habitat available. Surveys have been negative.	NLAA
Thread-leaved brodiaea *Brodiaea filifolia*	Threatened	Marginally suitable habitat for this species is present. Surveys have been negative.	NLAA
Santa Ana sucker *Catostomus santaanae*	Threatened	No habitat available. Surveys have been negative.	NLAA
Southwestern willow flycatcher *Empidonax traillii extimus*	Endangered	Suitable nesting habitat is absent.	NLAA
Least Bell's vireo *Vireo bellii pusillu*s	Endangered	Suitable nesting habitat is absent.	NLAA
Coastal California gnatcatcher *Polioptila californica californica*	Threatened	Suitable nesting habitat is present. Breeding territory.	LAA
Critical Habitat			
Braunton's milk-vetch	Final Designated	One critical habitat polygon occurs on the south side of SR-91 just outside the BSA.	NLAA
Santa Ana sucker	Final Designated	One critical habitat polygon occurs along the Santa Ana River, north of SR-91.	NLAA
Coastal California gnatcatcher	Final Designated	Two critical habitat polygons occur in the BSA along the SR-91.	NLAA

[1] Includes species from the USFWS list of species that may occur in the Project Area (February 11, 2016).
[2] Expected effects determination with implementation of the NCCP/HCP Construction-Related Minimization Measures and other proposed mitigation measures for both NCCP/HCP Plan Areas and non-NCCP/HCP Plan Areas.
[3] Effects Determinations: No effect; May affect; NLAA: Not likely to adversely affect; LAA: May affect, likely to adversely affect.

BSA = Biological Study Area
NCCP/HCP = Natural Community Conservation Plan/Habitat Conservation Plan
SR-91 = State Route 91
USFWS = United States Fish and Wildlife Service

Implementation of the specified avoidance, minimization, and mitigation measures in the Biological Opinion as determined during Section 7 consultation with the USFWS and those described in Chapter 4, Results: Biological Resources, Discussion of Impacts, and Mitigation, of this BA would adequately offset the potential effects to the federally listed plant and wildlife species and, therefore, the project is not likely to adversely affect these species.

5.3. Federal Endangered Species Act Consultation Summary

Under provisions of Section 7(a)(2) of the FESA, a federal agency (e.g., FHWA) that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat. This BA includes details on the Proposed Project's effects on federally listed plant and wildlife species and avoidance and minimization measures that address federally listed species.

Section 7 consultation was conducted with the USFWS for the ETC, which includes the connection with SR-91. The Biological Opinion was issued on July 6, 1994 (No. 1-6-94-F-17; Appendix D). However, a new formal Section 7 consultation is needed for the following reasons:

a. To request concurrence with "May affect, not likely to adversely affect" determinations for Braunton's milk-vetch, thread-leaved broadiaea, Santa Ana sucker, least Bell's vireo, and southwestern willow flycatcher.
b. To request incidental take authorization due to a "May affect, likely to adversely affect" determination for CAGN.
c. To verify the proposed impacts to and mitigation for occupied CSS, not occupied CSS, and designated CAGN critical habitat covered and mitigated under the NCCP/HCP agreement and the ETC Biological Opinion (1-6-94-F-17).
d. To verify the authorization of proposed incidental take numbers of CAGN (habitat supporting up to three pairs) that may exceed the amount of take specified in the incidental take statement included in the ETC Biological Opinion (1-6-94-F-17).
e. To request concurrence with "May affect, not likely to adversely affect" determinations for Braunton's milk-vetch, Santa Ana sucker, and CAGN critical habitat outside NCCP/HCP covered areas.

It is likely that the NCCP/HCP Construction-Related Minimization Measures (County 1996c) will also be applied to the non-NCCP/HCP Plan Areas, but this will be

determined during the consultation process. In this way, the avoidance and minimization measures may be consistent throughout the entire BSA.

Furthermore, as described in the NCCP/HCP documents, all development activities addressed by the NCCP/HCP are considered fully mitigated under the NCCP Act, CESA, and FESA for impacts to habitat occupied by listed and other species identified by the NCCP/HCP documents.

In summary, even though most of the Project Area may have prior take authorization through the Biological Opinion issued in 1994, and parts of the Proposed Project are considered a development activity addressed by the NCCP/HCP, renewed formal Section 7 consultation with the USFWS is required to ensure that the Project Area addressed by these documents is fully covered and that take authorization for potential adverse impacts to potentially occurring listed species, CAGN-occupied habitat, and designated Braunton's milk-vetch and CAGN critical habitat are covered.

5.4. Western Riverside County Multiple Species Habitat Conservation Plan

The Riverside County portion of the Project Area is located within the Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP; Caltrans District 8, San Bernardino Office, is the permittee agency for this Project) Conservation Area; however, this portion of SR-91 is planned for advance signage only and is not located within the WR-MSHCP Conservation Area that is vegetated, as it consists only of the paved roadway and shoulder. Placement of the advance signage area along SR-91 is shown in Appendix G (Sheets 9–13).

The SR-91 advance signage area is for roadway safety purposes and, in the context of the WR-MSHCP, is a Covered Activity under Section 7.3.4, Existing Roads Within the Criteria Area – Covered Road Maintenance Activities Within the Criteria Area: Publicly Maintained Roads; therefore, the objectives, policies, procedures, and guidelines from Section 7.5.3: Construction Guidelines, as well as BMPs outlined in Appendix C (Standard Best Management Practices of the WR-MSHCP, Volume 1) will minimize and avoid impacts to sensitive species and habitats occurring adjacent to the existing roadway in the Riverside County portion of the Project Area.

Applicable guidelines from Section 7.5.3: Construction Guidelines, include the following:

- When work is conducted during the fire season (as identified by the Riverside County Fire Department) adjacent to coastal sage scrub or chaparral vegetation, appropriate fire-fighting equipment (e.g., extinguishers, shovels, and water tankers) shall be available on the site during all phases of project construction to help minimize the chance of human-caused wildfires. Shields, protective mats, and/or additional fire preventative methods shall be used during grinding, welding, and other spark-inducing activities. Personnel trained in fire hazards, preventative actions, and responses to fires shall advise contractors regarding fire risk from all construction-related activities.
- Waste, dirt, rubble, or trash shall not be deposited in the Conservation Area or on native habitat.

Applicable practices from the 15 practices listed in Appendix C, Standard Best Management Practices, of the WR-MSHCP include the following:

- The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via pre-existing access routes to the greatest extent possible.
- To avoid attracting predators of the species of concern, the project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site(s).
- Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the project and shall be specified in the construction plans. Construction limits will be fenced with orange snow screen. Exclusion fencing should be maintained until the completion of all construction activities. Employees shall be instructed that their activities are restricted to the construction areas.
- The Permittee shall have the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions including these BMPs.

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Chapter 6. References

Atwood, J.L., and D.R. Bontrager. 2001. California Gnatcatcher (*Polioptila californica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/574.

Baldwin, B.G., convening ed. and D.H. Goldman et al. 2012. *The Jepson Manual Vascular Plants of California*. University of California Press, Berkeley, Los Angeles, and London. 1,568 pp.

BonTerra Consulting. 2005. Mountain Park Specific Plan Amendment Draft Environmental Impact Report (EIR) No. 331. SCH Number 2004071098. Volume I. March. Prepared for the City of Anaheim. http://www.anaheim.net/citydepartments/planning/Projects/MountainPark/mountain_park_Project_EIR.htm.

California Department of Fish and Wildlife, California Natural Diversity Database. 2015. Special Animals List. January. Periodic publication. 50 pp.

California Department of Fish and Wildlife, California Natural Diversity Database. 2015. Special Vascular Plants, Bryophytes, and Lichens List. January. Quarterly publication. 125 pp.

California Department of Fish and Wildlife, California Natural Diversity Data Base (CNDDB). 2011 and 2013. *Orange, Black Star Canyon, Prado Dam,* and *Yorba Linda, California* USGS 7.5-minute quadrangles (accessed April 4, 2011, and December 2013).

California Department of Transportation. March 2008. 2008 State Route 91 Widening Traffic Report Between SR-91/SR-55 Interchange and SR-91/SR-241 Interchange.

California Native Plant Society. 2001. *Botanical Survey Guidelines of the California* Native Plant Society. Fremontia 29(3-4):64-65.

California Native Plant Society Electronic Inventory (CNPSEI). 2011 and 2013. *Orange, Black Star Canyon, Prado Dam,* and *Yorba Linda, California* USGS 7.5-minute quadrangles (accessed April 2011 and December 2013).

CH2M Hill. 2015. *Noise Study Report*. SR-241/SR-91 Express Lanes Connector Project. Orange County and Riverside County, California; 12-ORA-241 PM 36.1/39.1; 12-ORA-91 PM 14.7/18.9; 08-RIV-91 PM 0.0/1.5. August. Prepared for Caltrans.

City of Anaheim, Susan Kim, Acting Principal Planner, April 13, 2015. Response letter to the Notice of Preparation/Notice of Intent for the SR-241/SR-91 Express Lanes Connector Supplemental EIR/EIS.

Cornell Lab of Ornithology. 2003. All About Birds Online Field Guide. http://www.birds.cornell.edu/AllAboutBirds/BirdGuide (accessed January 23, 2009).

County of Orange (County). 1996a. Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion (Final Administrative Record Copy; Parts I & II: NCCP/HCP). Prepared by R.J. Meade Consulting, Inc. July 17, 1996.

County of Orange (County). 1996b. Natural Community Conservation Plan & Habitat Conservation Plan, County of Orange Central & Coastal Subregion (Part III: Joint Programmatic EIR/EIS). Prepared by County of Orange Environmental Management Agency. May 1996.

County of Orange (County). 1996c. Natural Community Conservation Plan & Habitat Conservation Plan (Final Mitigation and Implementation Agreement Monitoring Program). Prepared by County of Orange Environmental Management Agency. March 28, 1996.

Drewe, Karen. 2006. Identification of the Braunton's Milk-Vetch in the Main Channel of Coal Canyon within Caltrans' Right-of-Way, personal communication with Elizabeth (Hohertz) Delk during preparation of the SR-91 Corridor Improvement Project Biological Assessment.

Hickman, J.C., ed. 1993. *The Jepson Manual Higher Plants of California*. University of California Press, Berkeley and Los Angeles, California. 1,400 pp.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Nongame Heritage Program. California Department of Fish and Game, Sacramento, California.

Jennings, M.R., and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. The California Department of Fish and Game, Inland Fisheries Division. Rancho Cordova, California.

LSA Associates, Inc. (LSA). 2014. *Natural Environmental Study*, State Route 241 and State Route 91 Express Lanes Connector Project, Orange County, California; 12-ORA-91, PM 16.0/17.9; 12-ORA-241, PM 36.7/38.7; EA 12-0K9700; Project Number 1200020097. May.

LSA Associates, Inc. (LSA). 2010. *Natural Environmental Study*, State Route 91 Corridor Improvement Project, Orange and Riverside Counties, California; ORA-91-R14.53/R18.91, RIV-91-R0.00/R13.04, RIV-15-R35.64/R45.14; EA 0F540.

NewFields. 2011. Habitat Restoration Plan for the Strawberry Farms 15-Acre Parcel. Prepared by NewFields, Margot Griswold, Los Angeles, California. 31 October 2011; amended 16 December 2011. Prepared for Transportation Corridor Agencies, Valarie McFall, Irvine, California.

Skinner, M.W., and B.M. Pavlik, eds. 1994. Inventory of Rare and Endangered Vascular Plants of California. CNPS Special Publication No. 1 (Fifth Edition, 1997 Electronic Inventory update). Sacramento, California.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010, A natural history summary and survey protocol for the Southwestern Willow Flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. Third Edition. Houghton Mifflin Co. Boston, Massachusetts.

Transportation Corridor Administration (TCA). 1992. Eastern Transportation Corridor, Final Environmental Impact Report. TCA EIR/EIS 2. May 14.

Transportation Corridor Administration, Federal Highway Administration, and Caltrans (TCA et al.). 1994. Eastern Transportation Corridor State Route 231, Final Environmental Impact Statement. Volumes 1 through 4. TCA EIS 2-1. September.

United States Fish and Wildlife Service. 2016. Official Species List: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project. Consultation Code: 08ECAR00-2016-SLI-0387; Event Code: 08ECAR00-2016-E-00528; Project Name: SR-241/SR-91 Express Lanes Connector. February 11. Carlsbad Fish and Wildlife Office.

United States Fish and Wildlife Service. 2015. Information for Planning and Conservation (IPaC). https://ecos.fws.gov/ipac/ (accessed May 19, 2011, June 15, 2011, September 9, 2013, and December 1, 2014).

United States Fish and Wildlife Service. 2011. Formal and Streamlined Section 7 Consultation for State Route 91 Corridor Improvement Project, Orange and Riverside Counties, California (FWS-ORJWRIV-08B0733-IIF0547).

United States Fish and Wildlife Service. 2010. Endangered and Threatened Wildlife and Plants; Final Rule Designating Critical Habitat for *Ambrosia pumila* (San Diego ambrosia); Final Rule. *Federal Register* 75 (229): 74546–74604.

United States Fish and Wildlife Service. 2007. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife; Final Rule; Endangered and Threatened Wildlife and Plants; Draft Post-Delisting and Monitoring Plan for the Bald Eagle (*Haliaeetus leucocephalus*) and Proposed Information Collection. *Federal Register* 72(130): 37345–37372.

United States Fish and Wildlife Service. 2007. Endangered and Threatened Wildlife and Plants; Reopening of Public Comment Periods for the Proposed Designations of Critical Habitat for the Coastal California Gnatcatcher. *Federal Register* 72 (63): 15827–15859.

United States Fish and Wildlife Service. 2007. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*). *Federal Register* 72 (243): 72010–72213.

United States Fish and Wildlife Service. 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Astragalus brauntonii* and *Pentachaeta lyonii*; Final Rule. *Federal Register* 71 (219): 66373–66422.

United States Fish and Wildlife Service. 2005. Designation of Critical Habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*); Final Rule: Federal Register 70:60886–61009. October 19, 2005.

United States Fish and Wildlife Service. 2003. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*) and Determination of Distinct Vertebrate Population Segment for the California Gnatcatcher (*Polioptila californica*); Proposed Rule. *Federal Register* 68(79): 20228–20312.

United States Fish and Wildlife Service. 2002. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Ambrosia pumila* (San Diego Ambrosia) from Southern California. *Federal Register* 67(127):44372–44382.

United States Fish and Wildlife Service. 2000. Final Determination of Critical Habitat for the Coastal California Gnatcatcher. *Federal Register* 65(206): 63680–63743.

United States Fish and Wildlife Service. 1997. Coastal California Gnatcatcher (*Polioptila californica californica*): Presence/Absence Survey Guidelines. Unpublished Paper. Sacramento, California.

United States Fish and Wildlife Service. 1997. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Plants and Threatened Status for Four Plants from Southern California. *Federal Register* 62(19): 4172–4183.

United States Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Final Determination of Critical Habitat for the Least Bell's Vireo. Federal Register 59:4845–4867.

United States Fish and Wildlife Service. 1994. Final Determination of Critical Habitat for the Least Bell's Vireo. *Federal Register* 59(22): 4845–4867.

United States Fish and Wildlife Service. 1993. Final Determination of Threatened Status for the Coastal California Gnatcatcher Throughout Its Historic Range in Southern California and Northwestern Baja California, Mexico. *Federal Register* 58:16742–16757.

United States Fish and Wildlife Service. 1986. Endangered and Threatened Wildlife and Plants; Final Rule Determining Endangered Status for the Least Bell's Vireo. Federal Register 51:16474–16482. United States Fish and Wildlife Service. 1988. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Long-nosed Bats. Federal Register 53 (190):38456–38460.

Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP). Volume 1 – The Plan. Website: http://rctlma.org/Portals/0/mshcp/volume1/index.html (accessed on April 30, 2015).

Appendix A Vascular Plant Species Observed

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APPENDIX A

VASCULAR PLANT SPECIES OBSERVED

The following vascular plant species were observed in the BSA by LSA biologist Stan Spencer, Ph.D., during site surveys conducted on May 10 and June 28, 2011, in August 2013 and May 2014.

* Introduced, nonnative species

ANGIOSPERMAE: DICOTYLEDONAE	**DICOT FLOWERING PLANTS**
Amaranthaceae	**Amaranth Family**
* *Amaranthus albus*	Prostrate pigweed
Anacardiaceae	**Sumac Family**
Malosma laurina	Laurel sumac
Rhus integrifolia	Lemonade berry
* *Schinus molle*	Peruvian pepper tree
Toxicodendron diversilobum	Pacific poison oak
Apiaceae	**Carrot Family**
* *Foeniculum vulgare*	Sweet fennel
Asteraceae	**Sunflower Family**
Acourtia microcephala	Sacapellote
Ambrosia acanthicarpa	Annual bur-sage
Ambrosia psilostachya	Western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	Mugwort
Baccharis pilularis	Coyote bush
Baccharis salicifolia	Mulefat
Baccharis sarothroides	Broom baccharis
Bebbia juncea	Sweetbush
* *Bidens pilosa*	Common beggar-ticks
Brickellia californica	California brickellbush
* *Carduus pycnocephalus*	Italian thistle
* *Centaurea melitensis*	Tocalote
* *Conyza bonariensis*	Flax-leaved horseweed
Conyza canadensis	Common horseweed
Corethrogyne filaginifolia var. *californica*	California aster
* *Chrysanthemum coronarium*	Garland chrysanthemum
Deinandra fasciculata	Fascicled tarweed
Encelia californica	California encelia
Encelia farinosa	Brittlebush
Eriophyllum confertiflorum var. *confertiflorum*	Golden yarrow

*	*Gazania linearis*	Gazania
	Hazardia squarrosa	Saw-toothed goldenbush
	Helianthus annuus	Western sunflower
	Heterotheca grandiflora	Telegraph weed
*	*Hypochaeris glabra*	Smooth cat's-ear
	Isocoma menziesii	Goldenbush
	Iva axillaris	Poverty weed
*	*Lactuca serriola*	Prickly lettuce
	Layia platyglossa	Common tidy-tips
	Logfia filaginoides	California cottonrose
*	*Logfia gallica*	Narrowleaf cottonrose
	Malacothrix saxatilis var. *tenuifolia*	Cliff malacothrix
	Pseudognaphalium californicum	California everlasting
*	*Pseudognaphalium luteoalbum*	Jersey cudweed
	Pseudognaphalium microcephalum	San Diego rabbit-tobacco
*	*Senecio vulgaris*	Common groundsel
*	*Silybum marianum*	Milk thistle
*	*Sonchus oleraceus*	Common sow-thistle
	Stephanomeria exigua	Small wreath-plant
	Uropappus lindleyi	Silver puffs
	Xanthium strumarium	Common cocklebur
	Ericameria palmeri var. *pachylepis*	Box Springs goldenbush
Boraginaceae		**Borage Family**
	Amsinckia menziesii	Common fiddleneck
	Cryptantha intermedia	Common cryptantha
	Heliotropium curassavicum	Salt heliotrope
	*Echium candicans**	Pride of Madeira
	Eriodictyon crassifolium	Thick-leaved yerba santa
	Phacelia cicutaria var. *hispida*	Caterpillar phacelia
	Phacelia distans	Common phacelia
	Phacelia parryi	Parry's phacelia
	Phacelia ramosissima	Branching phacelia
Brassicaceae		**Mustard Family**
*	*Brassica nigra*	Black mustard
*	*Brassica tournefortii*	Sahara mustard
*	*Hirschfeldia incana*	Shortpod mustard
	Lepidium lasiocarpum	Shaggyfruit pepperweed
*	*Lepidium latifolium*	Broad-leaved peppergrass
	Lepidium oblongum	Peppergrass
*	*Raphanus sativus*	Wild radish
*	*Sisymbrium orientale*	Indian hedgemustard
Cactaceae		**Cactus Family**
	Opuntia littoralis	Coastal prickly pear

Caprifoliaceae		**Honeysuckle Family**
	Sambucus nigra ssp. *cerulea*	Mexican elderberry
Chenopodiaceae		**Goosefoot Family**
	Atriplex canescens	Fourwing saltbush
	Atriplex lentiformis ssp. *lentiformis*	Big saltbush
	Chenopodium berlandieri	Nettleleaf goosefoot
*	*Chenopodium murale*	Nettle-leaved goosefoot
*	*Kochia scoparia*	Kochia
*	*Salsola tragus*	Russian-thistle
*	*Atriplex semibaccata*	Australian saltbush
Convolvulaceae		**Morning-Glory Family**
	Calystegia macrostegia	Morning-glory
Crassulaceae		**Stonecrop Family**
	Crassula connata	Sand pygmy-stonecrop
	Dudleya lanceolata	Lanceleaf dudleya
	Dudleya pulverulenta	Chalky live-forever
Cucurbitaceae		**Gourd Family**
	Cucurbita foetidissima	Calabazilla
	Marah macrocarpus	Wild cucumber
Euphorbiaceae		**Spurge Family**
*	*Chamaesyce maculata*	Spotted spurge
	Croton californicus	California croton
	Croton setigerus	Doveweed
*	*Ricinis communis*	Castor bean
Fabaceae		**Legume Family**
	Acmispon humistratus	Hill lotus
	Acmispon americanus	Spanish lotus
	Acmispon maritimus	Alkali lotus
	Acmispon glaber	Coastal deerweed
	Lupinus bicolor	Miniature lupine
	Lupinus succulentus	Arroyo lupine
*	*Medicago polymorpha*	California burclover
*	*Melilotus albus*	White sweetclover
*	*Melilotus indicus*	Yellow sweetclover
*	*Trifolium hirtum*	Bristled clover
	Trifolium willdenovii	Tomcat clover
Fagaceae		**Beech Family**
	Quercus agrifolia var. *agrifolia*	Coast live oak

Geraniaceae		**Geranium Family**
*	*Erodium botrys*	Long-beaked filaree
*	*Erodium cicutarium*	Red-stemmed filaree
Grossulariaceae		**Gooseberry Family**
	Ribes sp.	Currant
Juglandaceae		**Walnut Family**
	Juglans californica var. *californica*	Southern Calif. black walnut
Lamiaceae		**Mint Family**
*	*Marrubium vulgare*	Horehound
	Salvia apiana	White sage
	Salvia mellifera	Black sage
Malvaceae		**Mallow Family**
	Malacothamnus fasciculatus	Chaparral bush mallow
Myrtaceae		**Myrtle Family**
*	*Eucalyptus* sp.	Eucalyptus
Nyctaginaceae		**Four-o'clock Family**
	Mirabilis laevis	Wishbone bush
Oleaceae		**Olive Family**
	Fraxinus sp.	Ash
*	*Olea europaea*	European olive
Onagraceae		**Evening primrose family**
	Epilobium brachycarpum	Panicled willow-herb
Oxalidaceae		**Oxalis Family**
*	*Oxalis pes-caprae*	Bermuda buttercup
Papaveraceae		**Poppy Family**
	Eschscholzia californica	California poppy
	Romneya coulteri	Coulter's Matilija poppy
Phrymaceae		**Monkey-flower Family**
	Mimulus aurantiacus	Bush monkey flower
Plantaginaceae		**Plantain Family**
	Plantago ovata	Woolly plantain
Platanaceae		**Sycamore Family**
	Keckiella antirrhinoides	Yellow bush penstemon
	Platanus racemosa	Western sycamore

Polemoniaceae		**Phlox Family**
	Eriastrum sapphirinum	Sapphire woolly-star
	Gilia angelensis	Los Angeles gilia
	Leptodactylon californicus	Prickly-phlox
Polygonaceae		**Buckwheat Family**
	Eriogonum fasciculatum	California buckwheat
*	*Polygonum aviculare*	Common knotweed
*	*Rumex crispus*	Curly dock
Portulacaeae		**Purslane Family**
*	*Portulaca oleracea*	Common purslane
Rosaceae		**Rose Family**
	Heteromeles arbutifolia	Toyon
Rubiaceae		**Madder Family**
	Galium angustifolium ssp. *angustifolium*	Narrow-leaved bedstraw
Salicaceae		**Willow Family**
	Populus fremontii ssp. *fremontii*	Western cottonwood
	Salix gooddingii	Goodding's willow
	Salix laevigata	Red willow
	Salix lasiolepis	Arroyo willow
Simaroubaceae		**Quassia Family**
*	*Ailanthus altissima*	Tree of heaven
Scrophulariaceae		**Figwort Family**
	Scrophularia californica	California figwort
Solanaceae		**Nightshade Family**
	Datura wrightii	Jimsonweed
*	*Nicotiana glauca*	Tree tobacco
	Solanum douglasii	Douglas' nightshade
	Solanum xanti	Chaparral nightshade
Tamaricaceae		**Tamarisk Family**
*	*Tamarix ramosissima*	Mediterranean tamarisk
Urticaceae		**Nettle Family***
	Urtica urens	Dwarf nettle
Verbenaceae		**Vervain Family**
	Verbena lasiostachys	Western verbena

Vitaceae		**Grape Family**
	Vitis girdiana	Desert wild grape
Zygophyllaceae		**Caltrop Family**
*	*Tribulus terrestris*	Puncture vine

ANGIOSPERMAE: MONOCOTYLEDONAE MONOCOT FLOWERING PLANTS

Agavaceae		**Agave Family**
	Hesperoyucca whipplei	Chaparral yucca
Arecaceae		**Palm Family**
*	*Washingtonia robusta*	Mexican fan palm
Poaceae		**Grass Family**
*	*Avena barbata*	Slender wild oat
*	*Avena fatua*	Common wild oat
*	*Bromus catharticus*	Rescue grass
*	*Bromus diandrus*	Ripgut grass
*	*Bromus hordeaceus*	Soft chess
*	*Bromus madritensis* ssp. *rubens*	Foxtail chess
*	*Cynodon dactylon*	Bermuda grass
	Hordeum depressum	Low barley
	Leptochloa uninervia	Mexican sprangletop
	Leymus condensatus	Giant wild-rye
*	*Lolium multiflorum*	Italian ryegrass
	Stipa cernua	Nodding needlegrass
	Stipa lepida	Foothill needlegrass
	Stipa pulchra	Purple needlegrass
*	*Pennisetum setaceum*	African fountain grass
*	*Phalaris minor*	Littleseed canary grass
*	*Piptatherum miliaceum*	Smilo grass
*	*Polypogon monspeliensis*	Rabbitfoot grass
*	*Schismus barbatus*	Mediterranean grass
*	*Vulpia myuros* var. *myuros*	Rattail fescue
	Eragrostis sp.	Lovegrass
*	*Poa annua*	Annual bluegrass
*	*Stipa miliacea*	Smilo grass
Themidaceae		**Brodiaea Family**
	Bloomeria crocea	Golden stars
	Dichelostemma capitatum	Blue dicks

Taxonomy and scientific nomenclature generally conform to Baldwin, B.G., D.H. Goldman et al., eds. (2012; *The Jepson Manual: Vascular Plants of California*, Second edition; University of California Press, Berkeley and Los Angeles, California).

Common names for each taxon generally conform to Roberts, F.M., Jr. (2008; *The Vascular Plants of Orange County, California: An Annotated Checklist*; F.M. Roberts Publications, San Luis Rey, California) except where Abrams, L. (1923, 1944, and 1951; *Illustrated Flora of the Pacific States: Washington, Oregon, and California,* Vols. I-III; Stanford University Press, Stanford, California) and Abrams, L. and Ferris, R.S. (1960; *Illustrated Flora of the Pacific States: Washington, Oregon, and California*, Vol. IV; Stanford University Press, Stanford, California) were used, particularly when species-specific common names were not identified in Roberts, F.M., Jr. (2008).

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Appendix B Animal Species Detected

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APPENDIX B

ANIMAL SPECIES DETECTED

This is a list of the conspicuous reptiles, birds, and mammals noted in or flying over the study area by LSA Associates, Inc., biologists during surveys conducted from April through June 2011 and bat surveys conducted for associated projects in 2006, 2008, and 2013. Presence may be noted if a species is seen or heard, or identified by the presence of tracks, scat, or other signs.

* Species not native to the study area.

REPTILIA	**REPTILES**
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Common side-blotched lizard
Viperidae	**Vipers**
Crotalus oreganus	Western rattlesnake
AVES	**BIRDS**
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Phalacrocoracidae	**Cormorants**
Phalacrocorax auritus	Double-crested cormorant
Ardeidae	**Herons, Bitterns, and Allies**
Ardea herodias	Great blue heron
Ardea alba	Great egret
Cathartidae	**New World Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Hawks, Kites, Eagles, and Allies**
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	Red-tailed hawk
Laridae	**Gulls, Terns, and Skimmers**
Larus delawarensis	Ring-billed gull
Larus californicus	California gull

Columbidae		**Pigeons and Doves**
*	*Columba livia*	Rock pigeon
	Zenaida macroura	Mourning dove
Apodidae		**Swifts**
	Aeronautes saxatilis	White-throated swift
Trochilidae		**Hummingbirds**
	Calypte anna	Anna's hummingbird
	Selasphorus rufus or *sasin*	Rufous or Allen's hummingbird
Falconidae		**Caracaras and Falcons**
	Falco sparverius	American kestrel
Tyrannidae		**Tyrant Flycatchers**
	Sayornis nigricans	Black phoebe
	Sayornis saya	Say's phoebe
	Myiarchus cinerascens	Ash-throated flycatcher
	Tyrannus vociferans	Cassin's kingbird
	Tyrannus verticalis	Western kingbird
Corvidae		**Crows and Jays**
	Aphelocoma californica	Western scrub-jay
	Corvus corax	Common raven
Hirundinidae		**Swallows**
	Tachycineta bicolor	Tree swallow
	Stelgidopteryx serripennis	Northern rough-winged swallow
	Petrochelidon pyrrhonota	Cliff swallow
Aegithalidae		**Long-Tailed Tits and Bushtits**
	Psaltriparus minimus	Bushtit
Troglodytidae		**Wrens**
	Troglodytes aedon	House wren
	Thryomanes bewickii	Bewick's wren
Polioptilidae		**Gnatcatcher and Gnatwrens**
	Polioptila californica californica	Coastal California gnatcatcher
Sylviidae		**Sylviid Warblers**
	Chamaea fasciata	Wrentit

Turdidae	**Thrushes**
Sialia mexicana	Western bluebird
Mimidae	**Mockingbirds and Thrashers**
Mimus polyglottos	Northern mockingbird
Motacillidae	**Wagtails and Pipits**
Anthus rubescens	American pipit
Ptilogonatidae	**Silky-flycatchers**
Phainopepla nitens	Phainopepla
Parulidae	**Wood Warblers**
Geothlypis trichas	Common yellowthroat
Setophaga coronata	Yellow-rumped warbler
Emberizidae	**Emberizids**
Pipilo maculatus	Spotted towhee
Aimophila ruficeps	Rufous-crowned sparrow
Melozone crissalis	California towhee
Melospiza melodia	Song sparrow
Zonotrichia leucophrys	White-crowned sparrow
Icteridae	**Blackbirds**
Agelaius phoeniceus	Red-winged blackbird
Sturnella neglecta	Western meadowlark
Quiscalus mexicanus	Great-tailed grackle
Icterus bullockii	Bullock's oriole
Fringillidae	**Fringilline and Cardueline Finches and Allies**
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Spinus tristis	American goldfinch
MAMMALIA	**MAMMALS**
Sciuridae	**Squirrels, Chipmunks, and Marmots**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher

Cricetidae	**Hamsters, Voles, Lemmings, and New World Rats and Mice**
Microtus californicus	California vole
Neotoma macrotis	Big-eared woodrat
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	Audubon's cottontail
Molossidae	**Free-Tailed Bats**
Tadarida brasiliensis	Brazilian (Mexican) free-tailed bat
Verspertilionidae	**Evening Bats**
Eptesicus fuscus	Big brown bat
Antrozous pallidus	Pallid bat
Myotis californicus	California myotis
Myotis ciliolabrum	Western small-footed myotis
Myotis evotis	Long-eared myotis
Myotis yumanensis	Yuma myotis
Felidae	**Cats**
Lynx rufus	Bobcat
Canidae	**Foxes, Wolves, and Allies**
Canis latrans	Coyote
Cervidae	**Deer, Elk, and Allies**
Odocoileus hemionus	Mule deer

Taxonomy and nomenclature are based on the following:

Amphibians and reptiles: Crother, B.I. ed. (2012, *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico. Herpetological Circular* 39) for species taxonomy and nomenclature; Stebbins, R.C., and S.M. McGinnis (2012, *Field Guide to Amphibians and Reptiles of California,* Revised Edition, University of California Press, Berkeley) for sequence and higher order taxonomy.

Birds: American Ornithologists' Union (1998, *The A.O.U. Checklist of North American Birds*, Seventh Edition, American Ornithologists' Union, Washington, D.C.; and annual supplements; see http://checklist.aou.org/taxa).

Mammals: Wilson, D.E., and D.M. Reeder, eds. (2005, *Mammal Species of the World*, Third ed., Johns Hopkins University Press, Baltimore, Maryland; see http://vertebrates.si.edu/msw/mswcfapp/msw/index.cfm).

Appendix C Coastal California Gnatcatcher Survey Report

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LSA ASSOCIATES, INC.
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BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

July 14, 2011

Erin McCarthy
United States Fish and Wildlife Service
Carlsbad Field Office
6010 Hidden Valley Road, Suite 101
Carlsbad, CA 92011

Lyann Comrack
Nongame Wildlife Program
California Department of Fish and Game
1812 Ninth Street
Sacramento, CA 95811

Subject: Coastal California Gnatcatcher Survey Results: SR-241/SR-91 Express Lanes Connector Project, Orange County, California (April–June 2011)

Dear Ms. McCarthy and Ms. Comrack:

This letter report documents the results of protocol surveys for the coastal California gnatcatcher (*Polioptila californica californica*; CAGN), a federally listed threatened species, conducted by LSA Associates, Inc. (LSA). Six CAGN surveys were conducted in suitable habitat within the Biological Study Area (BSA), which is from the Windy Ridge area on State Route 241 (SR-241) to State Route 91 (SR-91), and from the SR-91 interchange with SR-241 along SR-91 to Coal Canyon. Portions south of SR-91 are undeveloped areas within the Central and Coastal Subregion Natural Communities Conservation Planning (NCCP) area. All survey areas are in Orange County, California (see Appendix A, Figure 1; all figures provided in Appendix A).

Surveys were positive, with one successfully breeding pair of CAGN (first clutch: 3 fledged young; second clutch: 3 nestlings at survey's end) and one incidentally observed male CAGN found within or immediately adjacent to the BSA (Figure 2).

BIOLOGICAL STUDY AREA

The BSA is from the Windy Ridge area on SR-241 to SR-91, and from the SR-91 interchange with SR-241 along SR-91 to Coal Canyon. The BSA is located on the United States Geological Survey (USGS) *Black Star Canyon, California* 7.5-minute series topographical quadrangle. The project area lies within the northeastern portion of the City of Anaheim and the southeastern portion of the City of Yorba Linda. The north side of SR-91 is bordered by Featherly Regional Park, the Santa Ana River, and the Santa Ana River Trail. South of SR-91, the area is predominantly surrounded by residential and commercial properties and portions of undeveloped areas within the NCCP planning area, but the proposed project is not within the NCCP Reserve. Most of the lands on the south side of SR-91 and the east and west sides of SR-241 are undeveloped open space.

Elevation ranges from approximately 370 feet (ft) above mean sea level (amsl) to 1,570 ft amsl. The surrounding topography adjacent to SR-91is moderately rolling, with steep canyons and hillsides associated with the Santa Ana Mountains bordering the southernmost portion of the BSA adjacent to SR-241.

Some of the vegetation types in the BSA are considered suitable for CAGN and include patches of coastal sage scrub (CSS) and black sage-bush mallow dominated chaparral. Some of the vegetation appears to be recovering from the Santiago Fire of October 2007. Dominant plant species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), shortpod mustard (*Hirschfeldia incana*), chaparral bush mallow (*Malacothamnus fasciculatus*), laurel sumac (*Malosma laurina*), coastal deerweed (*Lotus scoparius* var. *scoparius*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), bush monkey flower (*Mimulus aurantiacus*), and Whipple's yucca (*Yucca whipplei*).

METHODS

LSA biologists Eric Krieg, Ingri Quon, and Richard Erickson conducted six protocol surveys from April 14 to June 9, 2011, in accordance with survey guidelines issued in 1997 by the United States Fish and Wildlife Service (USFWS). During each survey, the biologist walked slowly through the scrub and adjacent habitats, listening for CAGN. A taped CAGN recording was played periodically along the survey route.

Surveys were conducted pursuant to Federal Fish and Wildlife Permit TE-777965-9 (April 8, 2008–April 7, 2012) and a letter permit from the California Department of Fish and Game (CDFG) attached to Scientific Collecting Permit SC-000777 covering conditions for research on listed birds (July 23, 2009–April 12, 2012). On March 30, 2011, per permit requirements, a 10-day survey notification was emailed to Erin McCarthy (USFWS) and Lyann Comrack (CDFG). The survey schedule and conditions are shown in Table A.

Table A: Survey Schedule and Conditions

Date (2011)	Time	Weather	Surveyor
April 14	0735–1100	Clear, cool, calm	RE
May 2	0700–0930	Clear, cool, light breeze	IQ
May 10	0730–1200	Clear, cool–mild, light air	IQ
May 26	0735–0845	Clear, cool–mild, calm–light air	EK
June 2	0715–0830	Clear, cool–mild, light breeze	EK
June 9	0630–0740	Clear, mild, calm–light air	EK

Surveyor: EK = Eric Krieg; IQ = Ingri Quon; RE = Richard Erickson
Wind description using seaman's terms from Beaufort scale.

RESULTS

A total of nine adult and young CAGN were detected or observed within or immediately adjacent to the BSA during the protocol surveys. All CAGN were within the vicinity of SR-241.

- A pair of CAGN hatched six young from two nests. The first nest was found on April 14 with three nestlings, which later fledged. A second nest with three eggs was found on June 2 and, on the last survey on June 9, this nest had three nestlings.

- A single male CAGN was heard and then observed on May 10 just outside of the BSA along the west side of SR-241, approximately 2,000 ft south of the connector on-ramps to SR-91.

No brown-headed cowbirds (*Molothrus ater*), a brood parasite of CAGN and other passerines, were detected during the surveys. A list of animal species detected during the surveys is shown in Appendix B. The California Native Species Field Survey Form for the CAGN observations is in Appendix C.

If you have any questions or comments, please call (949) 553-0666 or email Eric Krieg at eric.krieg@lsa-assoc.com, Ingri Quon at ingri.quon@lsa-assoc.com, or Richard Erickson at richard.erickson@lsa-assoc.com.

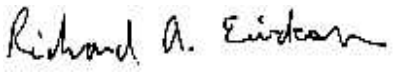
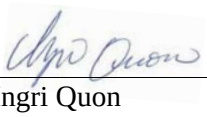
Sincerely,

LSA ASSOCIATES, INC.

Ingri Quon
Senior Biologist

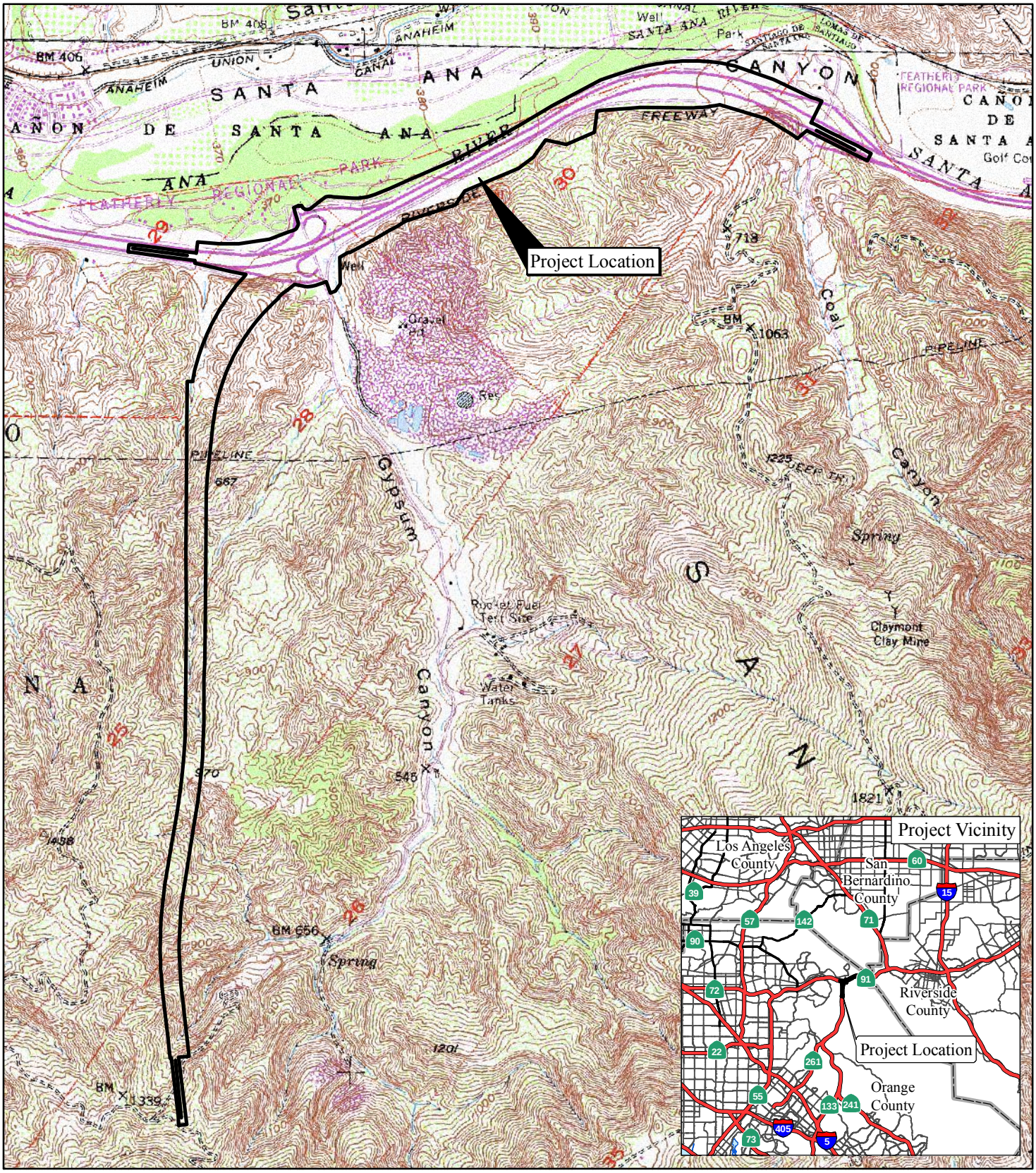
Attachments: Appendix A: Figures
Appendix B: Animal Species Detected
Appendix C: California Native Species Field Survey Form

I CERTIFY THAT THE INFORMATION IN THIS SURVEY REPORT AND ATTACHED EXHIBITS FULLY AND ACCURATELY REPRESENT MY WORK:

SURVEYOR:	PERMIT NUMBER:	DATE:
 Richard Erickson	TE-777965-9	July 14, 2011
 Eric Krieg	TE-777965-9	July 14, 2011
 Ingri Quon	TE-777965-9	July 14, 2011

APPENDIX A

FIGURES



LEGEND

Project Location

FIGURE 1

N

0 1000 2000

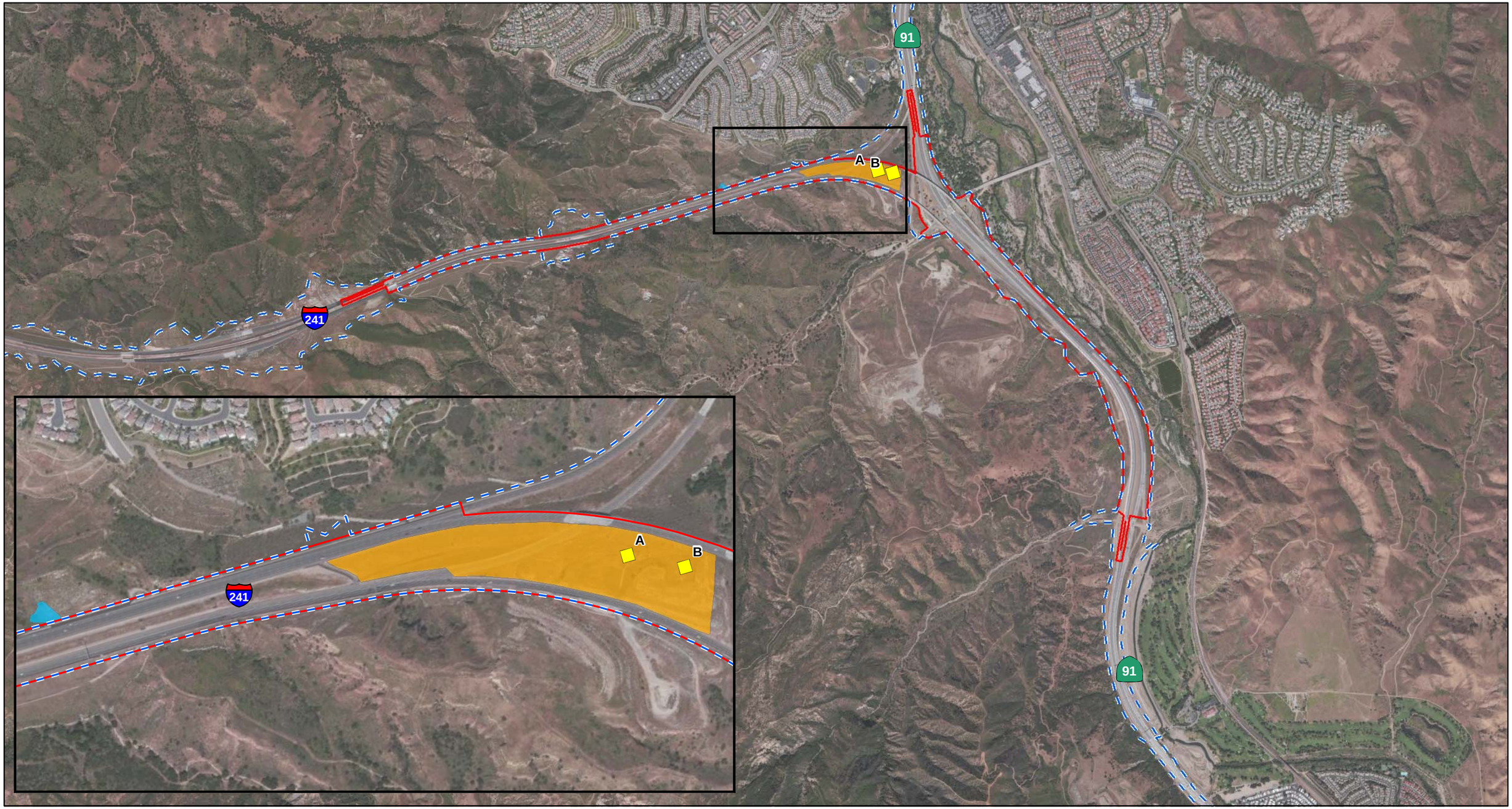
FEET

SR-91 Express Lanes Extension and SR-241 Connector

Project Location

SOURCE: USGS 7.5' Quad., BLACK STAR CANYON ('88)

I:\RBF1101\GIS\Fig1_ProjLoc.mxd (7/7/2011)



LSA

LEGEND

- Existing Caltrans ROW
- Biological Study Area (BSA)
- California Gnatcatcher Male Observed (5/10/11)
- California Gnatcatcher Pair & Family
- California Gnatcatcher Nest Location

0 1200 2400
FEET

SOURCE: Bing (2009); USFWS (2011)

I:\RBF1101\GIS\CAGN.mxd (7/7/2011)

FIGURE 2

SR-91 Express Lanes Extension and SR-241 Connector

Coastal California Gnatcatcher 2011 Survey Results

APPENDIX B

ANIMAL SPECIES DETECTED

APPENDIX B

ANIMAL SPECIES DETECTED

This is a list of the conspicuous reptiles, birds, and mammals noted in or flying over the study area by LSA Associates, Inc. biologists during surveys conducted from April through June 2011. Presence may be noted if a species is seen or heard, or identified by the presence of tracks, scat, or other signs.

* Species not native to the study area

REPTILIA	**REPTILES**
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Common side-blotched lizard
Viperidae	**Vipers**
Crotalus oreganus	Western rattlesnake
AVES	**BIRDS**
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Phalacrocoracidae	**Cormorants**
Phalacrocorax auritus	Double-crested cormorant
Ardeidae	**Herons, Bitterns, and Allies**
Ardea herodias	Great blue heron
Ardea alba	Great egret
Cathartidae	**New World Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Hawks, Kites, Eagles, and Allies**
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	Red-tailed hawk
Falconidae	**Caracaras and Falcons**
Falco sparverius	American kestrel
Laridae	**Gulls, Terns, and Skimmers**
Larus delawarensis	Ring-billed gull
Larus californicus	California gull

Columbidae		**Pigeons and Doves**
*	*Columba livia*	Rock pigeon
	Zenaida macroura	Mourning dove
Apodidae		**Swifts**
	Aeronautes saxatilis	White-throated swift
Trochilidae		**Hummingbirds**
	Calypte anna	Anna's hummingbird
	Selasphorus rufus or *sasin*	Rufous or Allen's hummingbird
Tyrannidae		**Tyrant Flycatchers**
	Sayornis nigricans	Black phoebe
	Sayornis saya	Say's phoebe
	Myiarchus cinerascens	Ash-throated flycatcher
	Tyrannus vociferans	Cassin's kingbird
	Tyrannus verticalis	Western kingbird
Corvidae		**Crows and Jays**
	Aphelocoma californica	Western scrub-jay
	Corvus corax	Common raven
Hirundinidae		**Swallows**
	Tachycineta bicolor	Tree swallow
	Stelgidopteryx serripennis	Northern rough-winged swallow
	Petrochelidon pyrrhonota	Cliff swallow
Aegithalidae		**Long-Tailed Tits and Bushtits**
	Psaltriparus minimus	Bushtit
Troglodytidae		**Wrens**
	Thryomanes bewickii	Bewick's wren
	Troglodytes aedon	House wren
Polioptilidae		**Gnatcatchers and Gnatwrens**
	Polioptila californica californica	Coastal California gnatcatcher
Sylviidae		**Sylviid Warblers**
	Chamaea fasciata	Wrentit
Turdidae		**Thrushes**
	Sialia mexicana	Western bluebird
Mimidae		**Mockingbirds and Thrashers**
	Mimus polyglottos	Northern mockingbird

Motacillidae	**Wagtails and Pipits**
Anthus rubescens	American pipit
Ptilogonatidae	**Silky-flycatchers**
Phainopepla nitens	Phainopepla
Parulidae	**Wood Warblers**
Dendroica coronata	Yellow-rumped warbler
Geothlypis trichas	Common yellowthroat
Emberizidae	**Emberizids**
Pipilo maculatus	Spotted towhee
Aimophila ruficeps	Rufous-crowned sparrow
Melozone crissalis	California towhee
Melospiza melodia	Song sparrow
Zonotrichia leucophrys	White-crowned sparrow
Icteridae	**Blackbirds**
Agelaius phoeniceus	Red-winged blackbird
Sturnella neglecta	Western meadowlark
Quiscalus mexicanus	Great-tailed grackle
Icterus bullockii	Bullock's oriole
Fringillidae	**Fringilline and Cardueline Finches and Allies**
Carpodacus mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Spinus tristis	American goldfinch
MAMMALIA	**MAMMALS**
Sciuridae	**Squirrels, Chipmunks, and Marmots**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Cricetidae	**Hamsters, Voles, Lemmings, and New World Rats and Mice**
Microtus californicus	California vole
Neotoma macrotis	Big-eared woodrat
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	Audubon's cottontail

Felidae	**Cats**
Lynx rufus	Bobcat
Canidae	**Foxes, Wolves, and Allies**
Canis latrans	Coyote
Cervidae	**Deer, Elk, and Allies**
Odocoileus hemionus	Mule deer

Taxonomy and nomenclature are based on the following:

Amphibians and reptiles: Crother, B.I. ed. (2008, Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico. *Herpetological Circular* 37) for species taxonomy and nomenclature; Stebbins, R.C. (2003, A Field Guide to Western Reptiles and Amphibians, third edition, Houghton Mifflin, Boston) for sequence and higher order taxonomy.

Birds: American Ornithologists' Union (1998, The A.O.U. Checklist of North American Birds, Seventh Edition, American Ornithologists' Union, Washington D.C.; and supplements; see http://www.aou.org/checklist/north/index.php).

Mammals: Wilson, D.E., and D.M. Reeder, eds. (2005, Mammal Species of the World, 3rd ed., Johns Hopkins University Press, Baltimore, Maryland; see http://vertebrates.si.edu/mammals/msw/).

APPENDIX C

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 04/14/2011

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Polioptila californica californica*

Common Name: coastal California gnatcatcher

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 9 Subsequent Visit? ☑ yes ☐ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Ingri Quon
Address: LSA Associates, Inc.
20 Executive Park #200 Irvine, CA 92614
E-mail Address: ingri.quon@lsa-assoc.com
Phone: (949) 553-0666

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

3	6			
# adults	# juveniles	# larvae	# egg masses	# unknown

☐ wintering ☑ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Orange Landowner / Mgr.: Caltrans and Transportation Corridor Agencies
Quad Name: Black Star Canyon Elevation: 600 ft
T 3S R 8W Sec 28, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Google maps
T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
DATUM: **NAD27** ☐ **NAD83** ☐ **WGS84** ☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ ***OR*** Geographic (Latitude & Longitude) ☑
Coordinates: Pair: 33 51' 45.52" N by 117 42' 55.69" W
Male: 33 51' 25.46" N by 117 43' 03.44" W

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Moderate quality coastal sage scrub: Artemisia californica, Eriogonum fasciculatum, Encelia californica, Malosma laurina, and ruderal.

6 Protocol Surveys from April 14 through June 9, 2011. One pair breeding. First nest successfully fledged 3 of 3 eggs/young. Second nest had 3 nestlings of 3 eggs as of the final survey on June 9. One incidentally observed male (calling) outside the study area on May 10.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Highways, open space

Visible disturbances: Fire, nonnative vegetation, development.

Threats: Road development - lane extension/interchange.

Comments: Breeding pair in the middle of the interchange for State Route (SR) 241 and SR-91 proposed for development.

Determination: *(check one or more, and fill in blanks)*

☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☑ By another person (name): Permitted: Richard Erickson, Eric Krieg
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

Appendix D Biological Opinion

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Field Office
2730 Loker Avenue West
Carlsbad, California 92008

July 6, 1994

OPTIONAL FORM 99 (7-90) 408 p 7/6/94
FAX TRANSMITTAL # of pages ▶ 44
To Mary Gray From Acting FS
Dept/Agency FHA Phone # 619/431-9440
Fax # 916/551-1273 Fax # 431-9618
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Mr. Peter C. Markle
Acting Division Administrator
U.S. Department of Transportation
Federal Highway Administration
California Division
980 9th Street, Suite 400
Sacramento, California 95814

Attn: Ms. Mary Gray

Re: Biological Opinion on the Effects of the Eastern Transportation Corridor (ETC) on the Coastal California Gnatcatcher, and Conference Report on the Brauntons' Milkvetch, Orange County, California (1-6-94-F-17)

Dear Mr. Markle:

This Biological Opinion responds to your January 14, 1994 request to the Fish and Wildlife Service (Service) for a formal consultation, pursuant to Section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act) on the effects of the ETC on the coastal California gnatcatcher (Polioptila californica californica). On February 22, 1994 the Service sent you a letter that indicated that the Biological Assessment for the ETC project satisfactorily addressed impacts to the listed and candidate species affected by the ETC project. However, after further review and analysis, the Service determined that additional information was needed regarding the impact of the ETC project on Orange County's Natural Community Conservation Plan (NCCP) Program before the Service could proceed with completion of the biological opinion; you were notified of the additional information needs in a letter from the Service dated March 10, 1994. On June 7, 1994, the Service received the final package containing the additional information needed to complete the biological opinion via your letter dated June 2, 1994.

The Service listed the coastal California gnatcatcher (Polioptila californica californica), hereinafter referred to as "the gnatcatcher", as a threatened species on March 25, 1993. On May 2, 1994, the listing was invalidated by the United States District Court of Columbia on the basis that the Secretary of the Interior failed to obtain and make available for public review and comment the data underlying a published scientific report on the specific taxonomy of the gnatcatcher. On June 16, 1994, Judge Sporkin granted a stay of his earlier decision to vacate the listing of the gnatcatcher, allowing the gnatcatcher to retain its threatened status while the Service made the data in question available to the public for review and comment. On June 2, 1994, the Service published a 60 day notice of availability (Notice) of the data in the Federal Register. In compliance with the Judge's order, the Secretary of the

DO NOT REMOVE FROM FILE 3.210.1

Biological Opinion

It is the biological opinion of the Service that the proposed project, including the mitigation and avoidance measures required by the Final EIS and Biological Assessment, and as modified by the additional mitigation measures proposed in the Federal Highway Administration's final submittal to the Service (FHA 1994c), is not likely to jeopardize the continued existence of the coastal California gnatcatcher. Critical habitat for this species has not been proposed and, therefore, no critical habitat would be modified.

The Service further concludes that the proposed project is not likely to jeopardize the continued existence of the Braunton's milkvetch.

This Biological Opinion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions of the County of Orange, presented to the Service on April 22, 1994, as discussed later in this document. If these conditions change substantially, reinitiation of formal consultation may be required, pursuant to 50 CFR 402.16.

Description of the Proposed Action

The Transportation Corridor Agencies (TCA) and Caltrans propose to authorize and have built a multiple lane tollway that would extend from State Route 91 south and west to Interstate 5 in central Orange County. The tollway would include a North Leg and an East Leg. As shown on Figure 1 of the Biological Assessment (P&D Technologies 1994), the North Leg would begin at State Route 91 and would traverse Gypsum and Blind Canyons to the East Orange Interchange. It would include six general purpose lanes, either one concurrent flow high occupancy vehicle (HOV) lane in each direction or two reversible HOV lanes and climbing and auxiliary lanes. The East Leg would begin at the East Orange interchange near Santiago Canyon Road and would extend southeast to connect with the Laguna Freeway at Interstate 5 near the United States Marine Corps Air Station in El Toro. It would include six general purpose lanes, two concurrent flow HOV lanes, and climbing and auxiliary lanes. The East Leg includes an interchange connection with the Foothill Transportation Corridor (North), west of Sand Canyon Avenue. The FTC (North) would extend from the ETC east to Oso Parkway. The ETC (North and East Legs) would be approximately 16.8 miles in length and have a grading width that varies from approximately 500 feet to 2,200 feet. Two maintenance stations to serve the tollway would be constructed as part of this project.

The ETC also includes, as a local related project, a West Leg, which would extend from a connection with the North and East Legs of the ETC at the East Orange Interchange to Jamboree Road south of Interstate 5 in Irvine, with no connection with Interstate 5. The West Leg would be constructed by TCA as a separate, locally funded project and is not part of the federal action assessed in this Biological Opinion. However, a separate Biological Opinion will be prepared for the West Leg ETC in consultation with the U.S. Army Corps of Engineers.

Interior must make a determination whether the listing should be revised or revoked in light of his review of the data and public comments received, no later than 100 days following the Notice. This 100-day period concludes on September 10, 1994.

The referenced action may affect the gnatcatcher. The project also may adversely affect this species' habitat, coastal sage scrub, in the project area and environs, and an avian species being considered for imminent listing by the Service, the coastal cactus wren (Campylorhynchus brunneicapillus couesi); we have included technical assistance recommendations concerning the effects of the project on this species in the opinion. This biological opinion also constitutes the conference report on a plant species proposed for federal listing, the Brauntons' milkvetch (Astragalus brauntonii). In addition, as requested by the project applicant, the Service has also provided technical assistance on two Category 2 candidate plant species that would be affected by the project in this opinion: the many-stemmed dudleya (Dudleya multicaulis) and chaparral beargrass (Nolina cismontana).

At issue in this biological opinion, are impacts to the gnatcatcher, cactus wren and the Brauntons' milkvetch that may result from direct, indirect, interrelated or interdependent actions that are enabled or regulated by the Federal Highway Administration and implemented by one or more or its agents (e.g. California Department of Transportation, [Caltrans], Transportation Corridor Agencies [TCA], private construction firms, private parties).

This Biological Opinion was prepared using the following information: 1) Eastern Transportation Corridor, Final Environmental Impact Report/Environmental Impact Statement, Foothill/Eastern Transportation Corridor Agency, March 1994 (hereinafter referred to as "EIS"); 2) Biological Resources Analysis Technical Report, P&D Technologies, May 1992; 3) Deer Telemetry Study, Foothill/Eastern Transportation Corridor Agency, March 1992; 4) Supplemental Draft Environmental Impact Study, Foothill/Eastern Transportation Corridor Agency, January 1993; 5) Federal Action on the Eastern Transportation Corridor Biological Assessment, Foothill/Eastern Transportation Corridor Agency, February 1994; 6) Southern California Coastal Sage Scrub Natural Community Conservation Planning (NCCP) Process Guidelines, including Attachment A: Conservation Guidelines and all attached and referenced documents, prepared by California Department of Fish and Game and California Resources Agency, November 1993 (hereinafter referred to a "Conservation Guidelines"); 7) County of Orange Coastal and Central NCCP/HCP Preliminary Reserve Design and Supporting Documentation, County of Orange, April 22, 1994; 8) various communications, including additional data and information developed between March through June 1994 by the Federal Highway Administration and/or their agents (on file); 9) Biological Opinion on the effects of the San Joaquin Hills Transportation Corridor on the Coastal California Gnatcatcher and Coastal Cactus Wren (on file); 10) Other biological references (see below, "Literature Cited and References").

Peter C. Markle (1-6-94-F-17) 4

As part of the proposed project, the Federal Highway Administration or its agents (specifically TCA) have agreed to implement the following mitigation measures, summarized below. For additional detail, refer to the Final EIS, Biological Assessment, and additional mitigation measures contained in the Federal Highway Administration's final submittals to the Service (FHA 1994b, 1994c). These measures are also further discussed in the "Terms and Conditions" related to the incidental take statement later in this document. In part, TCA (or the Federal Highway Administration) has agreed to:

1. Shift the ETC an estimated 500 feet further east away from Siphon Ridge. This shift reduces coastal sage scrub impacts, gnatcatcher and cactus wren impacts and provides a larger block of contiguous open space around Siphon Reservoir;

2. Develop and implement a Siphon Reservoir/Ridge Preservation and Restoration Program. Approximately 82 acres of existing coastal sage scrub in the Siphon Ridge area will be preserved. Another 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir will be restored, through a restoration/enhancement program developed in cooperation with the Service;

3. Implement a one-half acre pilot coastal sage scrub restoration/revegetation project. The results of this pilot program will be the basis for developing the coastal sage scrub restoration/enhancement project described above. The ultimate goal is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production, providing increased forage and nesting, not only for the California gnatcatcher but many other coastal sage scrub-associated species;

4. Contribute $1,515,000 to a Conservation Fund. The Conservation Fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The Conservation Fund will be set up in a phased-installment program over a three-year period. Each installment will be for the amount of $505,000. The first installment will be paid by January 1996 or within 90 days after the bond sale (based on the bond sale occurring on or after October 1, 1995), the second installment will be paid by January 1, 1997 and the third installment will be paid by January 1, 1998;

5. Restore 170 acres at designated areas along the ETC graded slopes with coastal sage scrub plant species. (There would be a 14-foot buffer between pavement and the restored vegetation to accommodate Caltrans maintenance activities (P&D Technologies 1994);

6. Construct a minimum of four wildlife crossings at four locations. These locations are described in the FEIS (FHA 1994a), Biological Assessment (P&D Technologies 1994) and subsequent documentation developed between the Service, the Federal Highway Administration and the TCA (FHA 1994b and 1994c). In conjunction with construction at the

four wildlife crossings, natural springs or seeps will be protected and/or gallinaceous guzzlers (catch basin/watering devices) or other water storage containers and salt licks shall be constructed and installed to encourage the use of the wildlife crossings. The Federal Highway Administration or its agents will coordinate with the Service during preparation of the final grading plan for the wildlife crossing at Station No. 816;

7. Provide 10 culverts at least 54" in diameter along the East Leg and 9 culverts at least 54" in diameter along the North Leg, and three culverts at least 54" in diameter for the Foothill Transportation Corridor Connection to enhance wildlife crossing. The locations and dimensions of the culverts meeting this criteria are described in FHA 1994c;

8. Revegetate the area disturbed by construction of the wildlife crossings. A wildlife crossing revegetation plan for each crossing will be coordinated with the Service prior to the construction of the crossings;

9. Obtain wildlife conservation easements for all habitat mitigation areas and movement corridors under the wildlife crossings related to the ETC;

10. Conduct wildlife movement studies near each of the four wildlife crossing locations during the Spring and Fall. Reports shall be prepared annually, beginning one year after the opening of ETC and continuing for a total of five years. Alternatively, TCA may participate in or provide monetary contributions to radio tracking studies of predators in the region, conducted by the Service or other parties approved by the Service.

If the studies indicate the wildlife crossings are less than successful, as determined by the Service, then additional corrective measures shall be conducted, as necessary;

11. Ensure the operation of twenty cowbird traps in the Siphon Reservoir area and along the East Leg in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity;

12. Perform a series of monitoring studies until performance criteria are met, to provide additional information on gnatcatcher habitat utilization. The purposes of these studies shall be as follows:

a. To determine the success of the revegetation efforts in providing nesting opportunities for the gnatcatcher with consideration of predation, nest parasitism and other factors, and, in addition,

b. A banding study will be conducted to determine extent of juvenile gnatcatcher dispersal at Siphon Reservoir and along the frontal slopes across the East Leg of the ETC. The banding study will be initiated in March of 1995.

The study methodologies shall be approved by the Service;

13. Immediately replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project;

14. Implement all mitigation measures that are implied or identified in the Technical Studies or EIS, pertaining to water quality or erosion to prevent the dissemination or concentration of pollutants in the project area or "Action Area";

15. Mitigate light and glare impacts according to the measures identified in the EIS;

16. Provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the ETC is ready to begin in earnest. The following construction monitoring measures will be implemented to minimize impacts to gnatcatchers, coastal cactus wrens, and coastal sage scrub habitat:

a) Construction will be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field.

b) The contractor will review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion.

c) Construction monitoring activities will include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor will work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the Federal Highway Administration, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation.

d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas will occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations.

e) Continuous monitoring of gnatcatchers in active territories will be conducted during any construction operations that occur within

100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers may occur, construction will cease pending coordination with the Service; and,

17. Mitigation measures for the many-stemmed dudleya and the chaparral beargrass will be conducted, as outlined in the ETC FEIS and the Biological Assessment, as modified below (FHA 1994a and P&D Technologies 1994):

a. The North Lake Interchange, as evaluated in the FEIS, will not be built as part of the ETC in order to avoid impacts to the many-stemmed dudleya. If this interchange should become necessary in the future, based on traffic demand, it will be redesigned to avoid impacts on the many-stemmed dudleya, or the impacts will be mitigated through the selection of an alternative site for transplantation and establishment of the plants, and as approved by the Service. The dudleya will be transplanted prior to the impact and reach a level of success, as approved by the Service, prior to impact by construction; and

b. A salvage program will be developed to remove and relocate chaparral beargrass that would be impacted by ETC construction, in consultation with the Service, CDFG and other qualified resources specialists. Revegetation/transplantation and enhancement of beargrass will occur along the graded slopes of the ETC alignment and within Open Space Area 31 and Blind Canyon; a 20 acre area in the Limestone Regional Park ETC reservation area has been set aside for chaparral beargrass preservation (P&D Technologies 1994).

In addition, the Service notes that the TCA has enrolled in the NCCP Program. The NCCP Program was established in 1991 by the State of California through passing of the Natural Community Conservation Planning Act of 1991. Planning and implementation of the NCCP Program is the responsibility of the California Department of Fish and Game, in collaboration with The Resources Agency. The purpose of the NCCP Program is to provide long-term, regionally designated protection of natural wildlife diversity while permitting appropriate and compatible land development. Subregional Conservation Plans are guided by the Natural Community Conservation Guidelines, which are based on recommendations by a five-member panel of experts on various aspects of coastal sage scrub ecology. The ultimate goal of a NCCP Program is to provide for the establishment and management of permanent multi-species preserves. This establishment of preserves under the NCCP Program includes the identification and subsequent permanent protection of a network of core reserves, and the incorporation of biological corridors and linkages between core reserves and with other natural lands. NCCP planning is currently underway in Orange, San Diego, Riverside and Los Angeles counties.

In Orange County, two subregions have been designated that encompass most of the coastal sage scrub habitat in the county - the Southern Subregion, and the

Central and Coastal Subregion. Draft NCCP plans are being prepared for both subregions, through a collaborative effort between local governments, environmental group representatives, land owners, land developers, TCA, CDFG and the Service.

The ETC project would affect the Central and Coastal NCCP planning effort, specifically, the Central subarea. A draft reserve design for this subregion was presented on April 22, 1994. The reserve design incorporates the ETC, along with its proposed wildlife crossings intended to preserve connectivity between habitat reserves bisected by the ETC. While a significant amount of coastal sage scrub habitat, including most gnatcatcher and coastal cactus wren population centers appear to have been included in habitat preserves, this reserve design was clearly identified as a preliminary design and subject to change as the planning process proceeded (County of Orange 1994). The Service has reviewed the draft reserve design and provided preliminary comments, but has not had the opportunity to review the data upon which the habitat reserves were based. Once the data have been received and analyzed by the Service, final comments on the Central and Coastal NCCP reserve design will be provided.

As discussed above, TCA is an active member of the Central and Coastal Subregional NCCP planning effort. In this capacity, TCA has responded to a number of requests for modification of the ETC project, including a strategic alignment shift in the Siphon Reservoir area to specifically reduce impacts to gnatcatchers, cactus wren and their coastal sage scrub habitat, and has incorporated other modifications to the project to improve wildlife movement across the ETC.

Effects of Proposed Action on Listed Species

Species Accounts

Coastal California Gnatcatcher

Primarily because of substantial, recent reductions in the habitat and range of the species and the inadequacy of existing regulations, the Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In recognition of the State's Natural Community Conservation Planning Program (NCCP Program), being implemented under the authority of the State of California's Natural Community Conservation Planning Act of 1991 (NCCP Act), and several local government on-going multi-species conservation planning efforts that intend to apply Federal Endangered Species Act standards to activities affecting the gnatcatcher, on December 10, 1993, the Service issued a special rule, pursuant to section 4(d) of the Act, defining the conditions under which take of the gnatcatcher would not be a violation of section 9 (58 FR 65088). Under the special rule, incidental take of the gnatcatcher by land-use activities addressed in an approved Natural Community Conservation Plan (NCCP) would not be considered a violation of section 9 of the Act, provided that the Service determined that the NCCP meets the issuance criteria for an "incidental take" permit, pursuant to section 10(a)(2)(B) of the Act and 50 CFR 17.32 (b)(2). A limited amount of incidental take of the gnatcatchers within subregions actively engaged in preparing a NCCP would also not be considered a violation

of section 9 of the Act, provided that such take results from activities conducted consistent with the State's NCCP Conservation and Process Guidelines. The Conservation Guidelines limit this "interim take" to no more than 5% of existing coastal sage scrub habitat.

The coastal California gnatcatcher is a recognized subspecies of the California gnatcatcher (Polioptila californica [Brewster]) and is endemic to coastal southern California and northwestern Baja California, Mexico (American Ornithologists' Union 1983, 1989; Atwood 1980, 1988, 1990, 1991).

The gnatcatcher, a small, gray songbird, is an obligate resident of coastal sage scrub dominated plant communities from Los Angeles County generally south along the coast to El Rosario at about 30 degrees north latitude (American Ornithologists' Union 1957, Atwood 1990, Phillips 1991, Banks and Gardner 1992). The appropriate habitat or habitat type, occurs in a patchy or mosaic distribution. The distribution and size of these patches of suitable habitat varies throughout the range of the species from year to year due to the expressed effects of a variety of variables.

Typical coastal sage scrub habitat constituents are relatively low-growing, drought-deciduous, and succulent plant species. Representative plant taxa in this plant community include coastal sagebrush (Artemisia californica), several species of sage (Salvia spp.), California buckwheat (Eriogonum fasiculatum), California encelia (Encelia californica), various species of cactus and cholla (Opuntia spp.), and several species of Happlopappus (Munz 1974; Kirkpatrick and Hutchinson 1980). Of the 11 subassociations of coastal sage scrub identified by Kirkpatrick and Hutchinson (1977), the gnatcatcher apparently routinely occupies only three of these.

The gnatcatcher is primarily insectivorous and defends territories ranging in size from approximately 2 to 40 acres (Atwood 1990; John Konecny, personal communication). Atwood's comprehensive studies (1988, 1991) and status review (1990) further reveal that the breeding season of the species extends from February through July, and apparently peaks in April. Juveniles associate with their parents for several weeks or even months after fledgling.

Although considered locally common fewer than 50 years ago (Grinnell and Miller 1944), Atwood (1990, 1992b) estimated that the approximately 1,811 to 2,291 pairs of gnatcatchers remain in the United States population. In the listing package, the Service estimated that there could be as many as 2,562 pairs gnatcatchers in Southern California (58 FR 16742). Although the documented decline of the gnatcatcher undoubtedly is the result of numerous factors, including nest depredation and brood parasitism by the essentially non-native brown-headed cowbird (Molothrus ater), habitat destruction, fragmentation or modification are the principal reasons for the gnatcatcher's current, precarious status (58 FR 16742). It has been estimated that as much as 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a, 1981b; Barbour and Major 1977), leaving coastal sage scrub as one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1987; O'Leary 1990).

For references that contain thorough accounts of the gnatcatcher and its coastal sage scrub habitat, please see the section entitled "References and Literature Cited" at the conclusion of this document.

Species Accounts

Coastal Cactus Wren

The cactus wren (Campylorhynchus brunneicapillus) is a large (length 18-22 cm) member of the wren family (Troglodytidae). Its body plumage is brown above and whitish below. The crown is often a rust-colored brown bordered by a conspicuous whitish eyebrow. The underparts are heavily spotted with black especially on the upper breast. The back is streaked, and the wings and tail are conspicuously barred in black and white (Dunn 1987, Terrill 1988, Rea and Weaver 1990).

One recognized subspecies of cactus wren (C. b. couesi) occurs in the United States. Although Rea (1986) proposed a new subspecies of cactus wren, C. b. sandiegensis (San Diego cactus wren), the American Ornithologists' Union Committee on Classification and Nomenclature has not accepted this proposed change in taxonomy (Dr. Burt Monroe, American Ornithologists' Union, pers. comm.).

On September 21, 1990, the Service received two petitions to list the San Diego cactus wren, C. b. sandiegensis (Rea 1986), as an endangered species pursuant to Section 4 of the Act. Given the biological information contained therein pertaining to sandiegensis and the remainder of the coastal population of the cactus wren, the Service affirmed that the petitioned action may be warranted on January 24, 1991, pursuant to Section 4(b)(3)(A) of the Act. This finding was subsequently published in the Federal Register on March 22, 1991 (56 FR 12146).

Accordingly, it is the coastal population of C. b. couesi that is referred to herein as the coastal cactus wren. A discussion of the nomenclatural history of the coastal California population of the cactus wren is presented by Rea and Weaver (1990).

The coastal cactus wren occurs from southern Ventura County southeast to the Baldwin Hills and the Palos Verdes Peninsula in Los Angeles County, east along the southern flank of the San Gabriel and San Bernardino Mountains from the northern San Fernando Valley in Los Angeles County to Mentone in San Bernardino County, and south along the coastal slopes and interior valleys west of the Peninsular ranges in western Riverside, Orange, and San Diego Counties to extreme northwestern Baja California, Mexico, in the vicinity of Tijuana and Valle de las Palmas. Maps depicting the distribution of the coastal population of the cactus wren are presented in Garrett and Dunn (1981) and Rea and Weaver (1990).

The geographic isolation of coastal and interior cactus wren populations has been enhanced by the urbanization of southern California and may be facilitating their genetic differentiation (e.g., see Rea and Weaver 1990). The hiatus of suitable habitat formed by the Transverse and Peninsular ranges

also serves to maintain and define the disjunct distribution of coastal and interior populations of the cactus wren. In addition, Garrett (1992) concluded that "...the habitat occupied by coastal Los Angeles and Ventura County cactus wrens (never considered to be part of the sandiegensis subspecies) is strikingly different than that occupied by the nearest desert populations in the western Antelope Valley..." and that "...all of the coastal slope populations are now functionally isolated from the desert ones...".

The coastal cactus wren is an obligate, nonmigratory resident of the coastal sage scrub plant community. As its common name suggests, this species is found in association with various species of cacti which provide sites for nesting, roosting, and foraging. The coastal cactus wren occurs almost exclusively in thickets of tall prickly pear (Opuntia littoralis and O. oricola) and coastal cholla (O. prolifera) at elevations up to 450 m above sea level (Rea and Weaver 1990). Rea and Weaver (1990) reported that "The wrens are absent from areas where only low, sprawling cacti grow."

From the early 1880's to the early 1930's, the coastal cactus wren was considered a locally common resident of cactus-dominated habitat from San Diego northwest to Santa Paula in Ventura County (Grinnell 1915; Willett 1912, 1933). However, even during this period, a decline in its status was noted. Dawson (1923) reported that "All proper desert areas west of San Gorgonio Pass are being threatened sharply by the human invasion ... The cactus wren has receded from many parts of the San Diego-Ventura section already, and is in danger of being altogether cut off."

Willett (1933) noted that this species had declined significantly in Ventura County (including its apparent extirpation from Simi Valley) as a result of land clearing activities for agricultural purposes. Grinnell and Miller (1944) characterized the range of the cactus wren on the coastal slope of southern California as "now much restricted as compared with conditions in the 1880's and 1890's, owing to great reduction of requisite habitat..."

The coastal cactus wren has been extirpated from at least 57 sites known to be occupied between 1976 and 1990 (Salata 1992). Many of the sites currently occupied by the coastal cactus wren contain very few pairs and are threatened by urban development, fire, agriculture, and a variety of other factors (Salata 1992). Rea and Weaver (1990) reported that only 10 of 52 sites currently occupied by the coastal cactus wren in San Diego County support five or more pairs. Overall, it is estimated that fewer than 2,400 pairs of coastal cactus wrens remain throughout its entire range (Salata 1992).

Considering the small overall population size of the coastal cactus wren, the precarious status of the coastal sage scrub plant community upon which it depends (O'Leary 1990), and the high degree of wren habitat fragmentation (Rea and Weaver 1990), further losses of habitat can be expected to have a significant adverse effect on the viability of extant subpopulations. Indeed, the status of the coastal cactus wren is symptomatic of the status of the coastal sage scrub plant community upon which it depends for its continued existence. As was indicated above, this plant community is one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1981a,b, 1987; O'Leary 1990).

Braunton's milkvetch

The Service first proposed Braunton's milkvetch (Astragalus brauntonii) for listing as federally threatened or endangered in January 1975. No action on the proposal was taken prior to 1978, when ESA amendments were enacted that required all proposals over two years old be withdrawn. A one-year grace period was provided to those proposals already more than two years old; however, Braunton's milkvetch was included in a Federal Register notice of withdrawal of the proposals that had expired in September 1979. The Service published an updated notice of review for the plants for which proposals had been withdrawn in December 15, 1980. This list included Braunton's milkvetch as Category 1 candidate species. In September 27, 1985 the list was revised and Braunton's milkvetch was listed as a Category 2 candidate species. More recent reviews of the threats facing the species throughout its range resulted in its elevation to a Category 1 candidate. In subsequent years, the Service found the petitioned listing of Braunton's milkvetch and other species warranted, but listing was precluded by other pending proposals of higher priority. Braunton's milkvetch was proposed for listing as endangered on November 30, 1992 (USFWS 1993).

The Braunton's milkvetch is a stout perennial of the legume family (Fabaceae). This species is approximately four to five feet tall covered with dense white hairs (Hickman 1993). This characteristic and its two-chambered pod allow it to be easily distinguished from other species of Astragalus. Fire or other site perturbation is required for seed germination. Individual plants live only two to three years; thus, the plant is only visible for a short period following a fire event. Braunton's milkvetch is thought to be associated with limestone soils and chaparral beargrass. The majority of the populations outside of limestone soils, occurrences have thus far been attributed to seed drift following a fire event (USFWS 1993). Braunton's milkvetch is known to occur in Ventura, Orange and Los Angeles Counties. Specific sites of known populations include Simi Hills, Coal and Gypsum Canyons, and historically Clamshell Canyon and the Santa Monica Mountains. In Orange County, it commonly occurs in areas supporting chaparral beargrass (Roberts 1993, pers. comm.). The current estimate of extant individuals of Braunton's milkvetch is approximately 300 plants (USFWS 1993).

Analysis of Impacts

Pursuant to the regulations at 50 CFR 402, the following constitutes an analysis of impacts to the gnatcatcher, coastal cactus wren, and Brauntons' milkvetch in and around the project Action Area, which includes all of the land that would be directly impacted by project construction, and indirectly affected by project construction and operation (e.g. noise effects), or affected because of potential induced growth.

As described above, there may be as many as 2,562 gnatcatchers remaining in the U.S. Of this total, about 757 pairs of gnatcatchers were estimated to occur in Orange County (58 FR 16743), prior to the wildfires that burned a significant amount of Orange County, primarily the coastal areas, in October 1993. Over 7,700 acres of coastal sage scrub burned as a result of the 1993 wildfires in Orange County. An estimated 144 pairs of gnatcatchers were

assumed lost (USFWS 1993). The most significant fire damage to the Orange County coastal sage scrub ecosystem occurred in the coastal areas, especially in the San Joaquin Hills area. Impacts to the gnatcatcher and coastal cactus wren resulting from this fire were analyzed in the Biological Opinion for the San Joaquin Hills Transportation Corridor (USFWS 1994). While significant impacts to the coastal populations of gnatcatchers and cactus wrens, it is expected that these populations will eventually increase as the habitat recovers from the fire (USFWS 1994).

The existing information on the abundance and distribution of the gnatcatcher in Orange County was supplemented by field surveys conducted as part of the NCCP planning effort. Intensive field surveys for the NCCP target species (gnatcatcher, coastal cactus wren and orange-throated whiptail lizard) were conducted in various locations within the coastal sage scrub habitat in the Santa Ana Mountains/Lomas de Santiago Ridge that comprises the reserve planning area for the Central subarea. Field surveys were conducted in 1991 through 1992 and again in the spring of 1994. Field survey locations included lands owned by the Irvine Company (a substantial portion of the Central Subarea) and County regional parks. In 1994, additional survey locations were selected, the basis of selection being those areas determined to have the greatest potential presence of gnatcatchers and cactus wrens. The purpose of these surveys were merely to note the presence or absence of NCCP target species, including the gnatcatcher. No attempt was made to determine the status of individuals sighted; NCCP survey results are reported as sightings. During the 1991-1992 field surveys in the Central subarea, approximately 163 gnatcatchers and 476 cactus wren were sighted. In the 1994 spring surveys, 174 gnatcatchers and 190 coastal cactus wren were sighted (R.J. Meade, Pers. Comm).

As stated above, the gnatcatcher is an obligate species of the coastal sage scrub habitat. Gnatcatchers are found more consistently and in higher densities in subassociations of coastal sage scrub generally found near the coast and lower in elevation (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm.). This is particularly noticeable in Orange County, where there is a relatively quick transition between the flatter, coastal areas, and the steeper, more mountainous portions of the county in the Santa Ana Mountains. Coastal sage scrub habitat in the foothill portion of the Loma Ridge and adjacent lowland areas provide an example of this observation. The Loma Ridge foothill area and adjacent lowlands traversed by the ETC range in elevation from about 500 to 1,200 feet in elevation and the existing patches of coastal sage scrub habitat supports significant populations of the gnatcatcher and coastal cactus wren (P&D Technologies 1994). Steeper areas immediately adjacent to these flatter foothill/lowland areas in the vicinity of the Limestone Canyon area have more scattered, less dense populations of gnatcatchers (P&D Technologies 1994). The coastal sage scrub patches in the foothill/lowland areas of the Loma Ridge may be the source population of gnatcatchers for the steeper, more mountainous areas to the east (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm).

Direct and Indirect Effects

As described in the Biological Assessment and as modified by the alignment shift off the Siphon Ridge area, the project will result in the permanent, direct loss of 250 acres of coastal sage scrub habitat. In addition it is estimated that indirect effects of project construction and operation (e.g., noise, light impacts, potential pollutant dispersal) may extend up to 1,000 feet from the centerline of the ETC. It is estimated that the construction will directly affect approximately 14 pairs and 5 single gnatcatchers for a total of 33 gnatcatchers; indirect effects may include an additional 9 pairs of gnatcatchers (P&D Technologies 1994, FHA 1994b).

Approximately 19.2 acres of potential habitat for the Braunton's milkvetch would be subject to direct impacts due to construction of the ETC. (P&D Technologies 1994).

Technical Assistance

Coastal Cactus Wren

Approximately 10 pairs and 11 single cactus wrens, for a total of 30 wrens would be directly affected by ETC construction. An additional 6 pairs and 10 individual cactus wrens may be indirectly affected (P&D Technologies 1994, FHA 1994b).

Many-stemmed Dudleya and Chaparral Beargrass

For the many-stemmed dudleya, approximately 4,500 to 6,256 plants would be directly affected by ETC construction. Indirect impacts could occur as a result of soil erosion, fugitive dust, and air pollution. The mitigation measure proposed, elimination of (possibly only temporarily) the North Lake Interchange, will significantly reduce the impacts to dudleya. If the transplatation program should become necessary, a monitoring program of at least three to five years would likely be required to determine success.

A minimum of about 19.2 acres of chaparral beargrass would be lost by ETC construction. Indirect impacts could occur as a result of soil erosion, fugitive dust, and air pollution. Since the potential for success of revegetation/transplantation of this species is unknown, a minimum Monitoring Program of 5 years would likely be necessary to ensure that the transplanted population is selfsustaining. Selection of the Limestone Canyon site for mitigation would depend upon the suitability of the soils.

Habitat Fragmentation

While the direct and indirect impacts associated with the ETC pose a significant threat to gnatcatcher populations in the Central Subarea, a more serious aspect of the ETC for gnatcatcher populations is habitat fragmentation, which tends to disrupt various ecosystem processes.

As discussed previously, habitat destruction and fragmentation are the most significant threats to gnatcatchers (and coastal cactus wrens). As noted by

Noss (1992) and Soule et al. (1992), "In the coastal sage of Southern California, a classic sequence of habitat destruction and fragmentation has occurred, involving a reduction in total habitat area and apportionment of the remaining area into small isolated pieces. These pieces, mostly canyons, then continue to lose native vegetation as human activities fragment them internally and nibble at their edges." The NCCP Conservation Guidelines notes that "...threats to coastal sage scrub habitat are more than losses of total habitat area alone. Threats also include losses of distinct subtypes of sage scrub and losses of the special conditions needed to maintain the broad suite of coastal sage scrub-resident species" (CDFG 1993) Habitat fragments have little long-term value for conservation, as smaller habitat areas contain fewer species. Also, smaller habitat patches with proportionally larger perimeters are more vulnerable to deleterious edge effects, although such effects have not yet been documented in coastal sage scrub (Atwood 1990).

In the County of Orange, relatively large, contiguous patches of coastal sage scrub still exist. This is due to a combination of a unique and proactive approach to land-use planning, which requires dedication of open space in return for development rights, and geography. In the Central subarea, open space dedication has been concentrated in the higher elevation areas adjacent to the Cleveland National Forest, such as the Limestone Regional Park and large canyon areas, such as Weir Canyon Wilderness Area. These dedicated open space lands contain a significant amount of coastal sage scrub. Development has tended to be more focused in the flatter, lower elevation areas, such as the coast and the inland valley area. The more steep foothill and mountain areas have been traditionally less attractive for development.

The ETC would bisect these contiguous coastal sage scrub patches, embedded within a mosaic of other natural habitats such as grasslands or chaparral. This will result in fragmentation of relatively contiguous patches of habitat into smaller patches to the west of the ETC, to a lesser extent, to the east of the corridor. Along the East Leg, the ETC would isolate the south-facing, lower elevation coastal sage scrub patches along the Loma Ridge and adjacent lowland areas, which support a significant population of gnatcatchers, away from a significantly larger, contiguous block of coastal sage scrub currently protected within Limestone Regional Park. Along the North Leg, Irvine Park, Weir Wilderness and Planning Area 31 would be isolated from coastal sage scrub and matrix habitats in the Gypsum and Coal Canyon areas, which abut the Cleveland National Forest. As discussed previously, coastal sage scrub typically exists in a patchy distribution, embedded within a matrix of other natural habitats, such as grassland or chaparral. Thus, the gnatcatcher and other species wholly dependent upon coastal sage scrub appear to be able to survive on small patches of habitat. Fragmentation of coastal sage scrub would impact gnatcatchers, and other obligate species, by isolating populations and preventing dispersal.

Fragmentation of habitat by the ETC is expected to inhibit, to some degree, juvenile dispersal of gnatcatchers and thus affect immigration between subpopulations that would be separated by the ETC. Little is known about juvenile gnatcatcher dispersal, or to what extent large roadways act as barriers to the gnatcatchers. Recent information suggests that 96% of juvenile gnatcatchers disperse within 1.5 miles of their natal territory; 80%

disperse within 1.25 miles of their natal territory (G. Braden, USFWS, Pers. Comm). Gnatcatchers have been observed flying high over roadways; it may be that they fly high to get a view of where they want to go, and if they see coastal sage scrub, they may move there (Bontrager, Pers. Comm). Since gnatcatchers probably prefer to utilize natural habitats to disperse (Noss 1992), the ETC may act as a barrier, especially in those areas where coastal sage scrub or other native habitat cannot be seen across the corridor. The ETC would be a significant barrier to terrestrial wildlife species, such as the coyote and other large predators and their prey, which would ultimately affect the coastal sage scrub ecosystem, and therefore the gnatcatcher and cactus wren.

In the Loma Ridge area, the alignment of the ETC is generally along the less steep portion of the foothill area, immediately adjacent to much steeper terrain, which may already form a barrier to gnatcatcher dispersal into this area. The ETC would effectively broaden this exiting natural barrier, and further impair dispersal of gnatcatchers from coastal sage scrub patches located west of the ETC to coastal sage scrub habitat located to the east (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm).

At Siphon Reservoir, fragmentation would also have a more significant effect on gnatcatchers due to the relative isolation of coastal sage scrub habitat. A total of approximately 115 acres of occupied gnatcatcher habitat exists within the Siphon Reservoir area. Approximately 26 acres occurs within proposed ETC grading limits. Gnatcatchers in the Siphon Reservoir area subject to direct or indirect impacts may attempt to disperse to adjacent habitats. However, little suitable habitat exists in proximity to this population to allow for potentially successful colonization by these birds. The gnatcatcher population at Siphon Ridge is bordered by avocado and citrus orchards to the east, citrus and row crops to the south, citrus orchards to the west and a combination of citrus and native open space to the north. Consequently, this population is surrounded by non-native habitats, except for a fairly narrow opening to natural open space to the north. It would appear that the best chance for successful dispersal would be to the north.

The project description includes a coastal sage scrub preservation/restoration program to partially mitigate the effects of the ETC construction and operation on the gnatcatcher population in the Siphon Ridge/Reservoir area. While only a few small scale efforts at coastal sage scrub restoration have been attempted, they indicate that net enhancement of habitat quality may be attainable. As stated in the Conservation Guidelines, ecological studies of coastal sage scrub show natural recovery from disturbance, which suggests that active restoration may be successful. The Conservation Guidelines recognize the feasibility of active coastal sage scrub restoration projects and conservatively estimate that a 5% habitat quality enhancement potential exists for coastal sage scrub habitat. The Conservation Guidelines' acknowledgement that up to a 5% interim habitat loss is acceptable during the period in which NCCPs are being developed is based upon the 5% restoration/enhancement potential estimate. The goal of the Restoration/Preservation Program at Siphon Ridge is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production providing increased

forage and nesting, not only for the California gnatcatcher but for many other coastal sage scrub-associated species. Approximately 82 acres of existing coastal sage scrub in the Siphon Ridge area will be preserved, and another 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir will be restored. If successful, this restoration program will improve the connectivity to coastal sage scrub habitat mosaic in the Loma Ridge area to the north.

In summary, the Service finds that fragmentation of coastal sage scrub habitat by the ETC poses a threat to the long-term viability of the gnatcatcher and likely other coastal sage scrub-associated species. The habitat patches remaining on the west side of the ETC, particularly in the Loma Ridge foothill and adjacent lowland areas, would be isolated to some degree from habitat to the east of the corridor.

As noted earlier, another negative result of fragmentation is edge effects. The 16.8-mile long corridor will create artificial edges along its length as it bifurcates natural, undisturbed habitat. The remaining habitat adjoining the ETC will have deteriorated value for wildlife to some distance away from the road due to the adverse affects of noise, air pollution and other factors. The ETC will also be a cause of mortality to a variety of species that move across the landscape.

The artificial edge created by the construction of the ETC could result in increased habitat disruption in areas that were previously inaccessible, and in increased rate of weedy plants (Noss 1992). This affect should be minimized by the revegetation of the graded slopes along the corridor with coastal sage scrub plant species, as proposed as part of the project's mitigation package (P&D Technologies 1994). The habitat fragmented and remaining on the west side of the ETC will be exposed to edge effects on both its east and west sides. Edge effects will include those created by the corridor along the eastern boundary of the habitat fragment, and those that will be created in the future along the western boundary of the habitat fragment by anticipated development, as it proceeds to press eastward into the foothill areas from the valley below.

Brood parasitism by the brown-headed cowbird (Molothrus ater), could be exacerbated by increased edge effect, likely affecting the reproductive potential of the gnatcatcher. Cowbird parasitism and the direct and indirect impacts of a variety of projects currently limit the distribution and potential expansion of gnatcatchers in Orange County, and in California as a whole. A composite of the best scientific information available suggests that cowbird abatement program proposed as part of the project should alleviate or offset the depression of gnatcatcher productivity that might otherwise result from the direct or indirect effects of the project. Specifically, management programs including cowbird abatement and predator surveillance have been extraordinarily successful in bringing about rapid and statistically significant increases in southern California populations of the least Bell's vireo (Vireo bellii pusillus), a Federally-listed endangered species (Salata 1987; Hays 1989; The Nature Conservancy 1993). More importantly, the available data reveal that 40% of the 10 gnatcatcher nests monitored in the Coyote Hills in Fullerton, California were parasitized by cowbirds (UNOCAL

1993) as were 31% (54) of 176 gnatcatcher nests monitored in Riverside County study sites during the 1992-1993 breeding seasons (G. Braden, Pers. Comm.). It is critical that the reproductive capability of the gnatcatcher and coastal cactus wren be maximized to the extent possible in the short-term and in perpetuity to conserve and recover the local populations of these species. The cowbird management measures proposed as part of the Project (P&D Technologies 1994), will contribute to the elimination of a significant threat to gnatcatcher reproductive capability.

Impacts to Central and Coastal NCCP Reserve Design

The impact of fragmentation of coastal sage scrub and its resident species, including the gnatcatcher, must be analyzed with respect to the County of Orange's NCCP planning efforts in the Central Subregion. As discussed earlier, the listing of the gnatcatcher as threatened was followed by the issuance of a special rule, which, in general, would allow land-use activities associated with a NCCP plan to not be considered a violation of section 9 of the Act. Orange County is enrolled in the NCCP Program and is currently preparing a NCCP for the Central and Coastal Subregions (and Southern Subregion); a draft reserve design for the Central/Coastal Subregional NCCP plan has been prepared (County of Orange 1994a).

The NCCP program is intended to establish and manage a viable, permanent system of coastal sage scrub reserves complete with its matrix of other habitats, as well as identify areas that would be appropriate for development within the Central Subregion. The potential for establishment of a viable reserve system in the Central Subregion is the critical element in determining the impact of the ETC on the gnatcatcher; the ETC is a critical factor affecting/influencing reserve design and viability in this area. If it can be found that a viable coastal sage scrub reserve system can be established in the Central Subregion that includes the ETC project and its accompanying mitigation measures, the ETC, (assuming these are adequate means to minimize and mitigate impacts) would likely not impair the overall utility of the habitat in the Central Subregion as essential gnatcatcher population centers.

Connectivity

Connectivity between habitat reserve areas is essential for maintenance of the viability of the wide range of species inhabiting coastal sage scrub, including the gnatcatcher, over the long-term. As discussed above, while it is not clear to what extent major highways act as barriers to gnatcatcher movement, the ETC would be a significant barrier to terrestrial species, such as the coyote, mountain lion and other large predators and their prey. The presence of a full compliment of resident species is important to the health and viability of a naturally functioning ecosystem. Since the Central subarea is bifurcated by the ETC, connectivity between reserve units must be provided through wildlife crossings.

The ETC has incorporated four wildlife crossings into its project design: three along the North Leg and one along the East Leg. The sites for these four wildlife crossings were selected to optimize wildlife crossing, particularly the wide-ranging mountain lion and deer, as determined by

movement studies conducted for both these species, and expert opinion (FHA 1994a, P&D Technologies 1994, FHA 1994b, 1994c). The wildlife crossing locations and sizes are described briefly here and in more detail in FHA 1994c. The North Leg wildlife crossings include: the Oak Canyon wildlife crossing at ETC Station Number 710, approximately 50 feet high, 100 feet wide at bottom to 250 feet wide at the top, with a 220-foot traverse; the Southern California Edison easement crossing at ETC Station Number 758, approximately 29 to 40 feet high, 100 feet wide (which includes a dirt maintenance and fire road) to 230 feet wide at the top, with a 250-foot traverse; and the Windy Ridge crossing at ETC Station Number 816, approximately 30 feet high, 80 feet wide at the bottom to 220 feet wide at the top, with a 260-foot traverse. The East Leg wildlife crossing includes the Haul Road, at ETC Station Number 395, approximately 20 feet high, 70 feet wide at the bottom to 130 feet wide at the top, with a 600-foot traverse. The ETC structure above this crossing has three large gaps between bridges, ranging between approximately 40 to 160 feet. In addition, the ETC mitigation program provides for 10 culverts at least 54 inches in diameter along the East Leg, 3 culverts at least 54 inches in diameter for the Foothill Transportation Corridor Connection and 9 culverts at least 54" in diameter along the North Leg to further enhance wildlife crossing of the ETC (FHA 1994c).

The NCCP Conservation Guidelines state that "Corridors or linkages function better when the habitat within them resembles habitat that is preferred by target species". As part of the project description, the area disturbed by construction of the wildlife crossings will be revegetated with the appropriate vegetation, to provide appropriate cover, as described in a revegetation plan that will be coordinated with the Service. In addition, wildlife conservation easements will be obtained for all habitat mitigation areas and movement corridors under the wildlife crossings. Also, natural seeps or springs will be protected and/or water guzzlers and salt licks will be constructed/installed as part of each wildlife crossing, to induce wildlife to use these artificial structures. The Service finds that the four wildlife crossings and other associated mitigation measures proposed as part of the project and included in "Terms and Conditions" below, together with the Central Subarea NCCP Reserve Design that includes large reserve areas which could be connected via the crossings, will provide connectivity between the Central Subregion reserve units, as described below.

Along the North Leg, the northern-most wildlife crossing is located on Windy Ridge (FHA 1994c). This crossing location would provide a major connection between existing dedicated open space and NCCP reserve areas on both sides of the ETC (County of Orange 1994). This crossing is located approximately 500 feet downslope of an existing wildlife corridor, and although there has been some doubt as to whether this crossing would be effective, especially for deer (Padly, Pers. Comm), deer and mountain lion would likely use this crossing (FHA 1994b, Heffley, CDFG, Pers. Comm.). The topography is steep. In consultation with the Service, the TCA proposes to recontour the area leading to the crossing on the eastern side of the alignment to modify and flatten the slope, and make the area more attractive for wildlife movement. Careful consideration will be required to ensure that the topography is favorable to wildlife movement, while ensuring that a revegetation plan will be successful

for this crossing. The water guzzlers should also help to induce wildlife to use this crossing.

Another crossing is provided about midway along the North Leg, at the Southern California Edison easement. This crossing would provide animals with access across the corridor into the Weir Canyon Wilderness Area, as expanded by the NCCP reserve. This crossing is located in the "Policy Plan" area of the Central Subarea NCCP; a designation which means that planning and reserve design decisions will be delayed until some time in the future, but will be dictated by "Policy Plan development criteria" developed as part of the Central Subregion NCCP (County of Orange 1994). The NCCP, through specific development criteria, will be required to ensure the use of these areas as wildlife crossings.

The third crossing along the North Leg of the ETC will occur at the Oak Canyon Crossing. This site is considered to be excellent for ensuring both deer and mountain lion movement (TCA 1992, FHA 1992, FHA 1994a, FHA 1994b). Fremont, Weir and Blind Canyons all connect in this area, providing animals with numerous possibilities for dispersal. The topography is easily traversed. This crossing is also located within the "Policy Plan" area of the Central subarea and will have the same requirements as the Southern California Edison easement crossing.

A large bridge spanning Santiago Canyon would be constructed as part of the ETC. This structure, designed primarily to avoid flood control problems, will also provide for recreational pedestrian, bikeway, and equestrian pathways between development proposed on both sides of the ETC in this area. This bridge will allow for the movement of coyotes and other small mammals, but will primarily encourage movement of nuisance species, such as skunks, opossums and red fox.

On the East Leg, a wildlife crossing has been sited within the Hick's Canyon Watershed near Haul Road (FHA 1994b, 1994c). This crossing will provide for wildlife movement from the Cleveland National Forest, through the currently designated Limestone Canyon Wilderness area, as augmented by NCCP reserve design, across the ETC to the Lomas Ridge Open Space area, as significantly augmented by the NCCP reserve design. While it presents a long traverse for wildlife (approximately 600 feet), the design of the bridge structure above the crossing includes three large gaps of space that will allow a significant amount of natural light will penetrate the crossing and reduce its potential to be tunnel-like. There are gaps ranging from 40 feet to 160 feet at regular intervals (50 to 110 feet) that accommodate the bridge structures planned. The most important animal anticipated to use this corridor is the coyote. Along the East Leg, there are also three culverts at least 54 inches in diameter associated with the ETC/FTC(N) interchange in this area that will allow movement of small mammals. In addition, the existing Bee Canyon Access Road will also provide for wildlife movement. The Haul Road crossing is essential to maintaining the health and viability of the Lomas Ridge reserve unit. The Haul Road Crossing will reduce the impacts to wildlife movement in this area.

As discussed earlier, the ETC design includes large culverts along both legs which may be used by small mammals and provide additional potential for wildlife to traverse the corridor. Coyotes have been known to use culverts with a diameter of 54 inches or greater. These culverts will supplement the main wildlife crossings considered minimally necessary to maintain connectivity between habitat fragments.

Central Subregional NCCP Reserve Design

As discussed previously, a draft Reserve Design for the Central and Coastal Subregions was presented on April 22, 1994 (County of Orange 1994). In general, the Central Subregional Reserve Design incorporates already committed open space and areas of open space contemplated in conjunction with the approval of certain development projects in other areas. This open space system would also be augmented by adding reserve areas known to contain significant populations of gnatcatchers and cactus wren, and to provide linkages of natural habitat. The Central Subregion draft Reserve Design incorporates over 21,000 acres of coastal sage scrub and its matrix of other associated habitats, including lands necessary for connectivity (R.J. Meade, Pers. Comm.). Existing, planned and/or proposed regional open space lands in the Central Subregion, as identified in the Biological Assessment, includes a total of 8,379 acres of coastal sage scrub in Weir Canyon Wilderness Park, Santiago Oaks Regional Park, Irvine Regional Park, Open Space Area 31 in Gypsum Canyon, Peter's Canyon Regional Park, the Loma Ridge Open Space system, miscellaneous open space associated with the East Orange General Plan, Limestone Canyon Regional Park, and Whiting Ranch Wilderness Park. Significant areas which were added as reserve unit areas as part of the NCCP planning process include: a significant expansion to incorporate coastal sage scrub and significant gnatcatcher and coastal cactus wren populations south of the existing Loma Ridge Open Space system, including Upper Rattlesnake Canyon, Hicks Canyon, lower Foothills of Bee/Round Canyons - a NCCP reserve unit totalling 2,441 acres in size, with connections to the Limestone Canyon Regional Park NCCP reserve unit, totaling 10,934 acres; and a major expansion of natural habitat around the Weir Canyon Wilderness Area - a NCCP reserve unit totalling 3,923 acres, which would connect with a significant amount of coastal sage scrub habitat in a habitat matrix in the Weir, Gypsum and Coal Canyon areas across the ETC - a NCCP reserve unit totaling about 2,579 acres (R.J. Meade Pers. Comm.).

The Reserve Design provides substantial acreage both east and west of the ETC, and utilizes the wildlife crossings included in the ETC project to maintain connectivity between significant reserve areas. As discussed previously, the ETC includes three wildlife crossings at strategic locations along the North Leg to provide for connectivity between reserve units. The reserve design, together with these crossings, is intended to allow for the movement of small and large mammals, including predators and their prey base among the Cleveland National Forest, Gypsum and Coal Canyon areas across the ETC into the Weir Canyon Wilderness Area as expanded by the Central Subregional draft Reserve Design. Gnatcatchers (and cactus wren) would be more likely to disperse over the ETC.

The East Leg of the ETC essentially fragments the south-facing frontal slopes and lowland areas of the Loma Ridge, from a large, contiguous block of natural habitat to the east, which could have disastrous impacts to coastal sage scrub ecosystem in this area, including significant impacts to the viability of gnatcatcher and coastal cactus wren populations. As stated previously, the ETC, in combination with the existing natural barrier of rugged, steep terrain immediately adjacent to this area could provide a significant barrier to gnatcatcher dispersal from the Loma Ridge source populations to the more scattered, less dense eastern subpopulations. The Central Subregional reserve design shows coastal sage scrub patches on these south facing frontal slopes and lowland areas of the Loma Ridge preserved as an approximately 2,400-acre reserve unit. This reserve unit provides for connectivity of coastal sage scrub in a matrix of grassland habitat, from the Siphon Reservoir north to the Loma Ridge/Santiago Hills area. Connectivity to preserved habitat across the ETC to the 10,934-acre Limestone Canyon NCCP reserve unit is provided by the Haul Road wildlife crossing, and to a lesser extent, the Bee Canyon access road and the three culverts associated with the ETC/FTC interchange near Siphon Reservoir. Maintenance/management of this area as a NCCP reserve unit, as a probable source population for the populations associated with the larger Limestone Canyon NCCP reserve unit, is likely essential to maintenance of gnatcatcher population in the Central Subregion over the long-term.

As discussed in the NCCP Conservation Guidelines, little is known about the coastal sage scrub ecosystem. The optimal size of a reserve unit to maintain coastal sage scrub ecosystem viability has not been studied. However, by applying a couple of the basic tenants of conservation biology, it is possible to reach some initial conclusions regarding the reserve design of the Lomas Ridge: 1. "Larger Reserves are Better" - Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations (CDFG 1993); and 2. "Link Reserves with Corridors" - Interconnected blocks of habitat serve conservation purposes better than do isolated blocks of habitat. The Lomas Ridge reserve unit is approximately 2,400 acres in size, and contains significant populations of gnatcatchers (and cactus wrens). This reserve unit is linked to a much larger NCCP reserve unit, the Limestone Canyon reserve unit, via the Haul Road wildlife crossing. The Limestone Canyon NCCP reserve unit consists of approximately 10,900 acres of contiguous habitat east of the East Leg of the ETC and north of the FTC (North). This area contains scattered populations of gnatcatchers and cactus wren.

While the Service has only recently obtained some of the digital data for the Central and Coastal Subregional NCCP (Stine, USFWS, Pers. Comm.), we conclude at this time that the Loma Ridge NCCP reserve unit as currently designed, in concert with the ETC-proposed wildlife crossing at Haul Road that will provide connectivity to the Limestone Canyon NCCP reserve unit, and with management provided through the NCCP plan, will likely provide for the long-term viability of the gnatcatcher, and likely other coastal sage scrub associated species in this area.

The County of Orange (County of Orange 1994b) has determined, in consultation with County's NCCP consultant, Dr. Rob Schonholtz, that the ETC would not

preclude or prevent the preparation of an affective subregional NCCP program.

In summary, the Service concludes that the proposed project will not jeopardize the overall survival and recovery of these species or the maintenance of viable populations of the species within the Northern Orange County Santa Ana Mountains and project "Action Area", primarily because of the habitat reserves proposed as part of the draft Central Subregional NCCP Reserve Design, and the substantial impact avoidance and compensation measures incorporated into the project description. Further, given these impact avoidance and compensation measures and the best scientific information, the Service concludes that the project-related bifurcation, the removal of coastal sage scrub habitat, and the indirect impacts likely will not impact the overall utility of the Northern Orange County Santa Ana Mountains as important, and probably essential, coastal cactus wren and gnatcatcher habitats and population centers. This conclusion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions, presented to the Service on April 22, 1994. If these conditions change or if subsequent information is received that determines that the NCCP reserve design is not valid, then this conclusion would also be invalidated.

Technical Assistance

Coastal Cactus Wren

The proposed project effects described above for the gnatcatcher are similar to those likely to affect the coastal cactus wren.

Consistency with NCCP Guidelines

In addition to reviewing the project for its impacts to the NCCP Planning Process ongoing in Orange County, the Service has reviewed the ETC project for consistency with the NCCP Process and Conservation Guidelines. The project applicant, TCA, has enrolled the ETC in the Central and Coastal NCCP Planning Effort, and is participating in the NCCP planning process. In general, the Service concludes that the ETC is generally consistent with the Guidelines and with the Central and Coastal Subregional NCCP. Specifically, the Service concludes that project-related impacts:

1) will not foreclose future conservation planning efforts until such time as an NCCP has been completed and long-term enhancement and management programs are formulated. The Central and Coastal Subregional NCCP is being prepared in concurrent with plans for the ETC. The NCCP plan is currently in the design phase, which includes the ETC alignment and associated mitigation measures. As discussed earlier, the ETC was shifted approximately 500 feet east, in order to reduce impacts to the Central Subregion NCCP reserve design, and to lessen impacts to significant populations of gnatcatchers and coastal cactus wrens. To address the issue of connectivity between reserve units that would be bifurcated by the ETC, an additional wildlife crossing was added to the project description. The project, including the proposed mitigation package, will provide funding necessary to assist in providing for the perpetual enhancement and management of conservation areas containing significant blocks

of coastal sage scrub habitat within the federal "Action Area" and the Central Subregion.

2) will not result in an interim loss equal to, or exceeding, 5% of the coastal sage scrub in any one subregion. The loss of coastal sage scrub by the ETC project would represent approximately 1.0 percent of the coastal sage scrub within the Central Subarea (FHA 1994b).

3) are, to the maximum extent practicable, limited to areas with smaller populations of target species. While the ETC has been in the planning process for a number of years, it is also being planned concurrent with the Central and Coastal Subregional NCCP. Areas of major biological importance, such as the Weir Wilderness Park and the Lomas Ridge/Siphon Ridge areas have been avoided to the maximum extent possible by project design and alignment changes. NCCP target species are generally present along the alignments of the North as well as the East Legs of the project. Out of an estimated eight populations of California gnatcatcher that are concentrated in the subregion (i.e. Weir/Santiago Regional Park, Peters Canyon, Irvine Park, Loma Ridge, Rattlesnake Reservoir, Siphon Reservoir, Aqua Chignon Wash and scattered locations in Limestone Regional Park), the project avoids all, except for a portion of the Siphon Reservoir population (P&D Technologies 1994, FHA 1994b). Throughout most of the coastal sage scrub adjacent to the project and within the grading limits, particularly on the north leg, the California gnatcatcher has been only sparsely reported (P&D Technologies 1994). The exception to that observation occurs at Siphon Reservoir. The TCA has recently moved the Corridor to address this concern and further reduced biological impacts. This shift of alignment further east of Siphon Ridge reduces coastal sage scrub impacts by an estimated 14 acres and reduces impacts to gnatcatcher pairs from eight to four. The ETC is located within the Santa Ana Foothills, which contains significant, but scattered, populations of the gnatcatcher and coastal cactus wren. Project design changes have minimized impacts to a large array of sensitive species.

4) do not, to the maximum extent practicable, disproportionately affect specific subunits of the environmental gradient in each subregion (as defined by vegetation subcommunity, latitude, elevation, distance from coast, slope, aspect or soil type. The ETC, as an essentially linear project, traverses a variety of vegetation communities, elevations, slopes, aspects and soil types (FHA 1994).

5) do not compromise the NCCP effort to protect, prior to completion of a subregional plan, areas of higher long-term conservation value as defined by the extent of coastal sage scrub habitat, proximity of that habitat to other habitat, the value of the habitat as landscape linkages or corridors, or the presence of sensitive species. While the Service only recently received some of the Central Subregional NCCP data from the County of Orange, and has not been able to determine the long-term conservation value of lands within the Central subregion, the Central Subregional draft reserve design has attempted to identify and include in the NCCP reserve, those areas that would appear to be of high value for long-term conservation (notable exceptions to this are the Tustin Ranch area and portions of the East Orange Planning Area). In addition, by incorporating the four wildlife crossings in strategic locations

along the ETC, the ETC project provides for the connectivity essential to maintaining the long-term health and viability of the NCCP reserves. In the Siphon Reservoir area, where an earlier alignment of the ETC had posed significant impacts to gnatcatcher and coastal cactus wren populations, the alignment was shifted 500 feet off the ridge to reduce these impacts, and to accommodate the NCCP reserve design. The revegetation and preservation measures which are proposed as a part of the project promote coastal sage scrub and biological values to help maintain and potentially enhance target species and their occupation of the southern foothills of the Santa Ana Mountains. The program will help facilitate gnatcatcher movement among Peters Canyon, Loma Ridge, Rattlesnake Canyon, Hicks Canyon and Siphon Ridge as well to the east at Aqua Chignon Wash. The revegetation and preservation area has been selected within and adjacent to open space areas which support substantive populations of California gnatcatcher and cactus wren populations.

6) do not compromise the NCCP effort to direct development pressure to areas that have lower conservation value. As discussed above, much of the coastal sage scrub habitat in the North Orange County Santa Ana Foothills is in committed open space or existing conservation areas, as augmented by the Central Subarea NCCP reserve design. The ETC will not necessarily direct development pressure towards (or away from) areas of higher long-term conservation value. Subregional planners have the task of identifying areas of long-term conservation value (the Reserve system) to steer development pressure into areas of lower conservation value within the North Orange County Santa Ana Foothills and federal "Action Area" through the continued NCCP effort.

7) do not compromise the NCCP effort to ensure that all interim habitat losses are adequately mitigated and that said mitigation contributes to the interim subregional mitigation program that will be subsumed in the long-term subregional NCCP. As is indicated above, the project, including the proposed compensation measures, will enhance the NCCP's goal to provide for the perpetual enhancement and management of coastal sage scrub, gnatcatcher and coastal cactus wren conservation areas within the Central subregion.

In addition, the Service concludes that the research, management and restoration measures that have been developed for this project constitute special mitigation measures, as required for the NCCP Program (CDFG 1993). The Conservation Guidelines emphasize the importance of management and restoration research to subregional NCCP planning and further state that such efforts are "essential to the adaptive management of coastal sage scrub habitat". It is further recognized that such efforts "undertaken as mitigation during the interim program will add to the overall ability of these conservation tools to be employed more successfully in the future" (CDFG 1993).

In summary, the Service concludes that the loss of the habitat within the project footprint and the overall direct and indirect effects of the project will not result in the extirpation of the Northern Orange County Santa Ana Mountains populations of the gnatcatcher or Brauntons' milkvetch. Given the commitment of the Federal Highway Administration and the applicant to provide the resources to conduct and fund the restoration, enhancement and management

activities for coastal sage scrub habitat in the Central Subregion, and the perpetual, intensive monitoring and management activities proposed, the Service concludes that project related impacts likely will not jeopardize the survival or recovery of the gnatcatcher.

Cumulative Impacts

Cumulative effects are those impacts of future State, local government, and private actions affecting endangered and threatened species that are reasonably certain to occur in the project "Action Area". Future federal actions will be subject to the consultation requirements established in Section 7 of the Endangered Species Act (Act) and, therefore, are not considered cumulative to the proposed action.

The majority of activities anticipated to affect these species within the foreseeable future are local projects with no direct Federal involvement. A large number of projects that lack a Federal nexus also have occurred or are proposed within the current range of the gnatcatcher and the coastal cactus wren. These projects could result, overtime, in significant cumulative effects to the gnatcatcher and to Brauntons' milkvetch. However, private projects with no Federal nexus are subject to certain other regulatory constraints of the Act. For example, Section 4 of the Act requires the Service to list species that are threatened or endangered, and section 9 of the Act prohibits the unlawful "take" [e.g., harm, harass] of listed species "by any 'person', including private individuals and entities."

Anticipated prohibitions against "take" and a desire to engage in proactive planning have prompted efforts by local governments and large land owners to develop Habitat Conservation Plans (HCPs), pursuant to authorization for incidental take under section 10 of the Act. In addition and as discussed within this document, The Resources Agency, the Department of Fish and Game, together with local governments, landowners and environmental groups and in cooperation with the Service, are together developing a Natural Communities Conservation Plans that would cover most of Orange County, including the project area. The efforts of all parties, working cooperatively with the agencies, and combined with current federal protection for the gnatcatcher that limits loss of coastal sage scrub habitat to no more than 5% during the planning stages are intended to provide mitigation for project-related impacts to the gnatcatcher, coastal cactus wren, orange-throated whiptail, and the entire suite of sensitive species resident in coastal sage scrub in the future. However, in the absence of NCCPs/HCPs incorporating substantive impact avoidance and compensation measures, the Service believes that habitat destruction, cowbird parasitism, and indirect impacts resulting from a variety of individual projects will effect the distribution and potential expansion of gnatcatchers and cactus wren throughout their historic range.

Nearly all of the land in the "Action Area" and in the Central Subregion that is not developed is within jurisdictions that have enrolled in the NCCP Program. As a result, all such lands are subject to the interim strategy outlined in the special rule, the Conservation Guidelines and other requirements of the NCCP process. This ensures that future land uses in this Subregion will be evaluated as to their impacts to the subregional planning

effort, and will be required to provide mitigation to ensure protection of the gnatcatcher and other target species in enrolled areas.

In the event that it is determined that any future proposed development in the "Action Area" would have adverse impacts on gnatcatchers, cactus wrens or other coastal sage scrub sensitive species covered in the NCCP plans, appropriate and adequate mitigation measures would be developed in concert with representatives from the Service and Department of Fish and Game to ensure the protection of those species. For any property in the "Action Area" that is not covered by a jurisdictional enrollment in the NCCP, that property would still be subject to the requirements of CEQA and the Endangered Species Act. The following quotation from the NCCP Process Guidelines addresses this specific issue:

CEQA has a mandatory finding of significance wherever:

> '(a) The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal,...'"(CEQA Guidelines, section 15065)

By that standard, most coastal sage scrub habitat in the NCCP Program area is sensitive and could trigger a CEQA finding of significance. Accordingly, the presence of coastal sage scrub would be disclosed and potential impacts to the gnatcatcher and coastal cactus wren would be revealed.

The EIS analyzes growth inducing impacts effects and land uses in the "Action Area" in detail. The EIS states that potential growth-inducing impacts generated by the ETC are most likely to affect nearby developed and undeveloped lands located in portions of north and central Orange County. These areas of potential impact include areas within the City of Anaheim's and Orange's Sphere of Influence. Siphon Ridge, Hick's Canyon, and Rattlesnake Canyon contain the majority of coastal sage scrub that is occupied by the gnatcatcher. The ETC would have no growth inducing impacts in these areas, as growth here is already planned as part of the City of Irvine General Plan (FHA 1994). Specifically, from north to south, Loma Ridge and the south-facing slopes in upper Rattlesnake Canyon are planned as open space, whereas further south in Hick's Canyon, the designation is residential estate and recreation. Siphon Ridge is designated agriculture, with a development reserve zoning designation. The ETC is not anticipated to change these designations to the east or west within this reach.

Aside from Siphon Ridge, Hick's Canyon and Rattlesnake Canyon, other significant biological resources are present in Blind, Fremont, and Gypsum watersheds. There are no current development plans in Blind and Fremont Canyons. However, the ETC does provide access to these areas, particularly to Blind Canyon. Consequently, the ETC does potentially have growth-inducing impacts in Blind and Fremont Canyon. However, these areas support little occupied habitat for the gnatcatcher. Growth-inducing impacts in these areas would not substantially affect habitat for the gnatcatcher, or other coastal sage scrub-associated species. Nevertheless, full environmental review of

future projects in areas along the ETC will be required prior to development. As described above, this entire area will be addressed in the Central and Coastal NCCP, which will address the anticipated impacts that would occur throughout the Subregion to coastal sage scrub habitat and the three target species.

In summary, the Service concludes, given all relevant information and analysis, that while the project could induce growth in portions of the project "Action Area", all future growth, whether planned or unplanned will be evaluated to determine its effects on the gnatcatcher under the Act, the NCCP Program and/or CEQA and will be constrained by the protective mandates of those statutes.

While little is known about where the Brauntons' milkvetch occurs, potential habitat occurs throughout the Gypsum Canyon and the northern end of Blind Canyon and the majority of Cypress Canyon. The growth-inducing impacts associated with the ETC in the Gypsum and Blind Canyon areas could be substantial.

Technical Assistance

Coastal Cactus Wren

Effects to the coastal cactus wren resulting from the above cumulative, growth inducing actions are similar to those described for the gnatcatcher.

Many-stemmed Dudleya and Chaparral Beargrass

Significant cumulative and growth-inducing impacts on the many-stemmed dudleya in the project area would result from development in the East Orange, Mountain Park and Cypress Canyon areas.

Chaparral Beargrass is already under consideration for listing on an emergency basis because of cumulative impacts to this species. Significant cumulative effects would occur as a result of ETC construction.

Incidental Take

Sections 4(d) and 9 of the Act prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR section 17.3). Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking, provided that such taking is in compliance with the

reasonable and prudent measures, and terms and conditions that implement them, as set forth below.

The Service hereby incorporates by reference the 17 mitigation measures from the Federal Highway Administration's "Description of Proposed Action" into this incidental take statement as part of these "Terms and Conditions". The "Terms and Conditions" reflect the mitigation measures as proposed, with modifications where necessary as determined by the Service. Where these "Terms and Conditions" vary from or contradict mitigation measures proposed under "Description of Proposed Action", specifications in these terms and conditions shall apply.

The Federal Highway Administration has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Federal Highway Administration fails to require the applicant adhere to the "Terms and Conditions" of the incidental take statement the protective coverage of section 7(o)(2) of the Act may lapse. This incidental take authorization is null and void if the above project description changes, if any mitigation or conservation measure in the EIS, Technical Report, Biological Assessment, or supplemental documentation is not fully carried out or executed, or if any Terms and Conditions or Reasonable and Prudent Measures as defined or described below are not met by The Federal Highway Administration, Transportation Corridor Agencies or their designated agents or successors, if the draft NCCP Reserve Design presented to the Service on April 22, 1994 is significantly modified, or if subsequent information received by the Service determines that the April 22, 1994 draft NCCP Reserve Design, incorporating the ETC alignment does not represent a viable reserve system for maintenance of the coastal sage scrub ecosystem.

It is not possible to precisely predict the amount of incidental take that would be associated with ETC construction, for several reasons:

- The number and location of birds will vary from season to season.
- The precise effects on breeding territories near the edge of the grading area are not known.
- The precise effects of noise and other disturbance on breeding territories outside the area of direct effect, but within the area affected by noise from the Corridor, can only be estimated.

However, given the information in the Biological Assessment and data and information developed supplemental to the Biological Assessment(FHA 1994b and 1994c), the Service anticipates that the following take could occur as a result of the proposed action:

1. Fifty one (51) gnatcatchers may be accidentally injured or killed during project construction or operation activities.
2. An unknown number of gnatcatcher eggs may be destroyed during project activities.

3. An unknown number of gnatcatcher fledglings may be destroyed during project activities.

The incidental take statement provided in this opinion satisfies the requirements of the Endangered Species Act, as amended. This statement does not constitute an authorization for take of listed migratory birds under the more restrictive provisions of the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The Service is developing a program to address incidental take under the Migratory Bird Treaty Act.

If, during the course of the construction and operation of the project, gnatcatchers are injured or killed or if the take limit is reached, the Federal Highway Administration shall notify the Service at once in writing. If, during the course of the construction, implementation, or operation of the project, the amount or extent of the incidental take limit is exceeded, the Federal Highway Administration or its agents must cease the activity resulting in take and reinitiate consultation with the Service immediately to avoid further violation of Section 9 of the Act. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). The Federal Highway Administration and its agents should provide an explanation of the causes of the taking.

Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize incidental take:

1. The Federal Highway Administration or its agents shall provide mitigation as described, implied, or suggested in the EIS, Technical Report, Biological Assessment and all other relevant letters and documents to minimize incidental take and to compensate for unavoidable impacts to the species.

2. The Federal Highway Administration and its agents shall minimize to the extent possible the harming or harassing of gnatcatchers and removal of coastal sage scrub habitat in conjunction with construction or other site development activities.

3. The Federal Highway Administration or its agents shall obtain all applicable state and Federal permits to take the gnatcatcher or coastal cactus wren and remove coastal sage scrub habitat. The incidental take authorization in this Biological Opinion is summarily revoked in the absence of such permits.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act, the Federal Highway Administration and its agents (e.g., CALTRANS, TCA, construction personnel, private parties) are responsible for compliance with the following terms and conditions, which implement the "Reasonable and

Prudent Measures" described above. To this end, the Federal Highway Administration or its agents shall, at a minimum, provide mitigation as described, implied, or suggested in the EIS, Technical Report, Biological Assessment and other relevant letters and documents to minimize incidental take (except as these measures are modified by the following Terms and Conditions). In part:

1. The Federal Highway Administration or its agents shall shift the ETC an estimated 500 feet further east away from Siphon Ridge. This shift effectively reduces coastal sage scrub impacts, gnatcatcher impacts and provide a larger block of contiguous open space around Siphon Reservoir.

2. The Federal Highway Administration or its agents shall implement the Siphon Reservoir/Ridge Preservation and Restoration Program as described in the biological assessment or in subsequent information developed in consultation with the Service. The general area for the 194-acre preservation/restoration program is described as follows: the McCollough water line marks the northern-most boundary; Bee Canyon boarders the area to west; Portola Parkway borders the area to the south; and the ETC itself forms the easternmost boundary. The preservation program shall include an estimated 48 acres near Siphon Ridge, and 34 acres to the southwest of Siphon Reservoir. This preservation acreage totals an estimated 82 acres. The restoration component of the Program includes creation of an estimated 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir, within the above defined parameters. It is anticipated that the restoration of the remaining acreage could begin implementation in the Fall of 1995. Coastal sage scrub habitat shall be deemed to be 'acceptable' if:

   a. the habitat is occupied by breeding pairs of gnatcatchers; or

   b. the Service and the Federal Highway Administration or it agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub; or

   c. the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.

3. The Federal Highway Administration or its agents shall conduct a one-half acre pilot coastal sage scrub restoration/revegetation project. The program could also serve as a demonstration project for the NCCP. Coastal sage scrub restoration/revegetation efforts on recently cleared agricultural areas has been limited and not clearly documented; therefore, the results of this pilot program are anticipated to provide valuable data for future projects of this kind, and will also be the basis for developing larger coastal sage scrub restoration/revegetation projects, including remaining available agricultural land surrounding

Siphon Reservoir. The site is one-half acre of recently cleared orange groves located on the east facing slopes just northwest of Siphon Reservoir within The Irvine Company Orange Orchard No. 300. The orange trees were cut six inches above the trunk and treated with an herbicide approximately six months ago, leaving the root system intact. The top of the trees were chipped into mulch piles with some still remaining on the site.

The ultimate goal is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production providing increased forage and nesting, not only for the California gnatcatcher but many other coastal sage scrub-associated species.

The one-half acre pilot coastal sage scrub program started in January 1994 and is currently underway with native seed collection being the first activity conducted. The initial program is planned to be conducted in two phases over the first year including seed and cactus pad collection, staking the site, collecting soil samples, site preparation, planting and seeding, monitoring and watering and preparing monitoring reports.

4. The Federal Highway Administration or its agents shall contribute $1,515,000 to a conservation fund established by the Service. Payments to the fund shall be made to the Fish and Wildlife Foundation. The conservation fund is to be used to support the Natural Communities Conservation Planning effort, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional Planning effort. Uses and disbursement of this Conservation Fund shall be determined by the Service. The Conservation Fund will be set up in a phased-installment program over a three-year period. Each installment will be for the amount of $505,000. The first installment will be paid by January 1996 or within 90 days after the bond sale (based on the bond sale occurring on or after October 1, 1995), the second installment will be paid by January 1, 1997 and the third installment will be paid by January 1, 1998. These payments and this compensation measure shall be undertaken above and beyond (and in addition to) all other compensation measures or impact avoidance measures identified herein.

5. The Federal Highway Administration or its agents shall restore 170 acres at designated areas along the Corridor graded slopes with coastal sage scrub plant species. The revegetation effort shall be considered acceptable if the total cover by native coastal sage scrub species is at least 70 percent and the vegetation is not being artificially sustained, or if the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago. In addition, this roadside revegetation effort shall provide for a maintenance zone that should help to prevent fires adjacent to the ETC. This maintenance area shall include an unvegetated strip of four feet in

width adjacent to the paved shoulder, and an additional 10 foot strip of low fuel volume native plants that can be routinely mowed.

6. The Federal Highway Administration or its agents shall construct a minimum of four wildlife crossings at four locations as described in the FEIS (FHA et al 1994), the Biological Assessment (P&D Technologies 1994) and in subsequent documentation developed between the Service, the Federal Highway Administration and the TCA (FHA 1994c). In conjunction with construction at the four wildlife crossings, natural springs or seeps will be protected and/or gallinaceous guzzlers (catch basin/watering devices) or other water storage containers and salt licks shall be constructed and installed at both ends of each of the four wildlife crossings to encourage the use of the crossings. A final grading plan that includes a topsoil preservation program shall be approved by the Service prior to the construction of the wildlife crossing at Station 816 (Windy Ridge Crossing). In addition, fencing at least 10 feet in height shall be installed along the both sides of the ETC in the general vicinity of the Windy Ridge wildlife crossing, to prevent roadside mortality and to assist in funneling animals toward the Windy Ridge crossing. Placement of the fencing shall be approved by the Service prior to construction of the wildlife crossing.

7. The Federal Highway Administration or its agents shall provide 10 culverts at least 54" in diameter along the East Leg and 9 culverts at least 54" in diameter along the North Leg, and 3 culverts at least 54" in diameter for the Foothill Transportation Corridor Connection to enhance wildlife crossing. The locations and sizes of the culverts shall be as described in documentation developed subsequent to the Biological Assessment (FHA 1994c).

8. The Federal Highway Administration or its agents shall revegetate the area disturbed by construction of the wildlife crossings with native habitat indigenous to the area. A revegetation plan for each crossing shall be approved by the Service prior to the construction of the wildlife crossings. The revegetation effort shall be considered acceptable if the total cover by native species indigenous to the area, including coastal sage scrub, is at least 70 percent and the vegetation is not being artificially sustained, or, the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that restored coastal sage scrub habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.

9. The Federal Highway Administration or its agents shall conduct movement studies near each of the four wildlife crossing locations during the Spring and Fall. Reports shall be prepared annually, beginning one year after the opening of ETC and continuing for a total of five years. Alternatively, TCA may participate in or provide monetary contributions to radio tracking surveys of predators in the region, conducted by the Service or other parties approved by the Service.

If the studies indicate the measures are less than successful, as determined by the Service, then additional corrective measures shall be conducted, including the possibility of the construction of a new wildlife crossing, as necessary.

10. The Federal Highway Administration or its agents shall ensure the operation of twenty cowbird traps in the Siphon Reservoir area and along the East Leg of the ETC in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity. Cowbird trapping shall begin during the spring of 1995 and shall continue for a minimum of five months each calendar year, unless the Service and the Federal Highway Administration or its agents unanimously agree that a lesser effort is justified during a given calendar year. The design, placement, and operation of the traps shall be directed and approved by the Service. A report detailing cowbird management activities shall be provided to the Service within two months of the conclusion of trapping efforts during each and every calendar year. Upon request of the Federal Highway Administration or its agents, the Service shall attempt to locate a suitable public or non-profit foundation or organization that is willing to provide, under contract, the services necessary to meet this mitigation requirement. In any case, The Federal Highway Administration or its agents shall be responsible for obtaining permission from The Irvine Company to operate traps on their property.

11. The Federal Highway Administration or its agents shall perform a series of monitoring studies until performance criteria are met, to provide additional information on gnatcatcher habitat utilization. The purposes of these studies shall be as follows:

    a. To determine the success of the revegetation efforts in providing nesting opportunities for the gnatcatcher with consideration of predation, nest parasitism and other factors, and in addition,

    b. A banding study will be conducted to determine extent of juvenile gnatcatcher dispersal at Siphon Reservoir. The banding study will be initiated in March of 1995.

    The Service shall approve the study methodologies and shall set performance standards for the above studies, prior to the initiation of the studies. In addition, the Service shall require that researchers involved in such studies obtain permits pursuant to Section 10(a)(1)(a) of the Endangered Species Act.

12. The Federal Highway Administration or its agents shall obtain wildlife conservation easements for all habitat mitigation areas, as identified in the FEIS and Biological Assessment, and movement corridors under the wildlife crossings related to the Corridor, as described in the Biological Assessment, and supplemental information provided to the Service (FHA 1994b and 1994c).

13. The Federal Highway Administration or its agents shall be responsible for immediately replacing or restoring all coastal sage scrub habitat outside of the approved construction footprint of the ETC, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project. The replacement or restoration of coastal sage scrub habitat shall be held to the same standards as the other revegetation efforts, and shall be considered acceptable if the total cover by native coastal sage scrub species is at least 70 percent and the vegetation is not being artificially sustained, or if the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.

14. The Federal Highway Administration or its agents shall implement all mitigation measures that are implied or identified in the Technical Studies or EIS, as referenced in the EIS pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or "Action Area."

15. Light and glare shall be mitigated according to measures identified in the EIS.

16. The Federal Highway Administration or its agents shall provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the Corridor is ready to begin in earnest. The Federal Highway Administration shall, to the extent possible, minimize the take of gnatcatchers by employing whatever means or measures that are necessary to prevent the harm and death of individual birds during grubbing, clearing, and other construction activities.

    At a minimum, the following construction monitoring measures shall be implemented to minimize impacts to gnatcatchers, coastal cactus wrens, and coastal sage scrub habitat:

    a) Construction shall be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field.

    b) The contractor shall review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion.

    c) Construction monitoring activities shall include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as

the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the Federal Highway Administration, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation.

d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas shall occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations.

e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories shall be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal cactus wrens may occur, construction will cease pending coordination with the Service.

17. The Federal Highway Administration or its agents shall obtain necessary local, State and Federal permits to take, harm, or destroy the gnatcatcher and coastal sage scrub habitats. The authorizations granted herein, including the incidental take authorization, are null and void absent such permits. In particular, the Federal Highway Administration shall comply with all pertinent provisions of the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended).

18. The Federal Highway Administration, as the Federal action agency, shall retain ultimate responsibility for the implementation of all preceding terms and conditions in the event of financial or institutional incapacity of TCA to perform them.

Technical Assistance

Coastal Cactus Wren

1. The above terms and conditions for gnatcatchers should also remove the adverse effects of project construction and operation on the coastal cactus wren.

Disposition of Sick, Injured, or Dead Individuals

The Service's Carlsbad Office must be notified within three working days should any listed species be found dead or injured in or adjacent to the project area. Notification must include the date, time, and location of the carcass, cause of death or injury, and any other pertinent information. If

necessary, the Service will provide a protocol for the handling of dead or injured, listed animals. In the event that the Federal Highway Administration or it agents suspect that a species has been taken in contravention of any federal, State, or local law, all relevant information shall be reported within 24 hours to the Service's Carlsbad Enhancement Office at (619) 431-9440 or to the Service Division of Law Enforcement, Torrance, California at (310) 297-0062.

Conservation Recommendations

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. The Federal Highway Administration and Service should analyze and consider the goals and progress of the proposed NCCP and other conservation planning efforts to insure consistency with Biological Opinions issued in conjunction with Federal projects or projects that are Federally-funded or permitted. This analysis should be extended to a consideration of the success of proposed avoidance and mitigation measures associated with this project and other projects throughout the range of the gnatcatcher and coastal cactus wren.

2. The Service, in consultation with other Federal agencies and working group or recovery team members, should assess the efficacy of various measures for mitigating project-related direct or indirect impacts to gnatcatchers, and their habitat. Thus far, it is apparent that successful creation or restoration of coastal sage scrub habitat has been achieved by relatively few revegetation specialists. Because the creation or restoration of coastal sage scrub habitat is often an essential component of effective mitigation for impacts to said habitat, revegetation methodologies and related data bases warrant close scrutiny and constant refinements.

Conclusion

This concludes the biological opinion on the Federal Highway Administration/Eastern Transportation Corridor proposed project. As found at 50 CFR 402.16, reinitiation of formal consultation is required if the action is significantly modified from that described above or if new information becomes available on listed species or impacts to listed species. Specifically, if the draft Central and Coastal Subregional NCCP reserve design changes substantially (as determined by the Service), especially in the area of the Lomas de Santiago ridge, or if analysis of the forthcoming data from the County of Orange refutes the determinations made by the Service at this time, reinitiation of formal consultation will be required. Additionally,

should any of those species for which the Service provided technical assistance in this opinion, including the coastal cactus wren, the many-stemmed dudleya or the chaparral beargrass, be proposed for listing by the Service, formal consultation should be initiated immediately.

If you have any questions on this biological opinion, please call me at (619) 431-9440 or Tara Wood of my staff, at (916) 978-4613.

Sincerely,

for Peter A. Adams

Gail C. Kobetich
Field Supervisor

LITERATURE CITED AND REFERENCES

American Ornithologists' Union. 1957. Checklist of North American Birds, 5th Edition. American Ornithologists' Union, Washington, D.C.

American Ornithologists' Union. 1983. Checklist of North American Birds, Sixth Edition. American Ornitholoists' Union. Printed by Allen Press, Lawrence, Kansas. 877 pages.

American Ornithologists' Union. 1989. Thirty-seventh supplement to the American Ornithologists' Union checklist of North American birds. Auk 106 (3): 532-538

Anderson, E.R. 1991. Habitat Preferences of the California Gnatcatcher in San Diego County. Unpublished M.A. thesis, San Diego State University.

Atwood, J. 1980. The United States distribution of the California black-tailed gnatcatcher. Western Birds 11: 65-78

Atwood, J. 1988. Speciation and geographic variation in black-tailed gnatcatchers. Ornithological Monographs No. 42. American Ornithologists' Union, Washington, D.C.

Atwood, J. 1990. Status review of the California gnatcatcher (Polioptila californica). Manomet Bird Observatory, Manomet, Massachusetts.

Atwood, J. 1991. Subspecies limits and geographic patterns of morphological variation in California gnatcatchers (Polioptila californica). Bulletin Southern California Academy of Sciences 90 (3) 118-133.

Axelrod, D. 1978. The origin of coastal sage vegetation, Alta and Baja California. American Journal of Botany 65 (10): 1117-1131.

Barbour, M. and J. Major 1977. Terrestrial Vegetation of California. John Wiley and sons, New York.

Benson, L. 1969. The Native Cacti of California. Stanford University Press, Stanford, California.

Braden, G. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications pertaining to the incidence of cowbird parasitism at Riverside County study areas, California; 1992 and 1993.

Braden, G. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications regarding gnatcatcher fledgling dispersal. 1994.

Bontrager, D. 1994. First annual progress report, 1993 California gnatcatcher research activity in the superpark Area of Orange County, California. Unpublished report prepared for the U.S. Fish and Wildlife Service, OMA, Fairfax, Virginia. January, 1994.

Bontrager, D. Personal communications regardings roads as barriers to gnatcatcher movement. 1994.

Bowler, P. 1990. Coastal sage scrub restoration - I: The challenge of mitigation. Restoration and Management Notes 8(2): 78-82.

California Department of Fish and Game. 1993a. Southern California coastal sage scrub Natural Community Conservation Planning Process Guidelines. Amended November, 1993.

County of Orange. 1994a. County of Orange Coastal and Central NCCP/HCP Preliminary Habitat Reserve Design.

County of Orange. 1994b. Letter regarding consistency of the ETC with the County's NCCP Process. On file, USFWS Carlsbad Field Office.

Dawson, W. 1923. The Birds of California. Volume 1. South Moulton Company, San Diego.

Dunn, J., E. Blom, G. Watson, and J. O'Neill. 1987. Cactus wren account. Pp. 318-319 in Field Guide to the Birds of North America (S.L. Scott, ed.). National Geographic Society, Washington, D.C.

Environmental Science Associates. 1992. Eastern Transportation Corridor Deer Telemetry Study. Prepared for the Foothill/Eastern Transportation Corridor Agencies. February 1992.

Federal Highway Administration. 1993. Supplemental Draft Environmental Impact Statement. Prepared for the Foothill/Eastern Transportation Corridor Agencies. January 1993.

Federal Highway Administration. 1994a. Eastern Transportation Corridor Final Environmental Impact Statement. March 1994.

Federal Highway Administration. 1994b. Letter providing supplemental information developed for the mitigation package for the Eastern Transportation Corridor. June 2, 1994.

Federal Highway Administration. 1994c. Letter providing supplemental information developed for the mitigation package for the Eastern Transportation Corridor. July 1, 1994.

Fleisman, E. and D.D. Murphy. 1993. A review of the biology of coastal sage scrub. Draft outline in Southern California Coastal Sage Scrub Natural Communities Conservation Plan, Scientific Review Panel Conservation Guidelines and Documentation. Unpublished report. California Department of Fish and Game, Sacramento.

Freudenberger, D.O., B.E. Fish, and J.E. Keelye, 1987. Distibution and stability of grasslands in the Los Angeles Basin. Bulletin of the Southern California Academy of Sciences 86:13-26.

Garrett, K. 1992. Correspondence to the U.S. Fish and Wildlife Service Dated February 3, 1992. Natural History Museum of Los Angeles County, Los Angeles, California.

Garret, K. and J. Dunn. 1981. The Birds of Southern California: Status and Distribution. Los Angeles Audubon Society; 407 pages.

Cary, J.T. 1983. Competition for light and a dynamic boundary between chaparral and coastal sage scrub. Madrono 30:43-49.

Grinnell, J. 1915. A distributional list of the birds of California. Pacific Coast Avifauna No. 11.

Grinnell, J. and A. Miller 1944. The distribution of the birds of California. Pacific Coast Avifauna 27.

Hays, L. 1989. The status and management of the Least Bell's Vireo within the Prado Basin, California, 1986-1989. Unpublished report, California State University, Long Beach Foundation, Lon Beach, California; Dr. Charles T. Collins, Project Director.

Heffley, C. California Department of Fish and Game. Personal communications regarding use of Windy Ridge area for Deer Movement. 1994.

Hillyard, D. and M. Black. 1987. Coastal sage scrub revegetation at Crystal Cove State Park, Orange County, California: 1987 update. Proceedings of the Second Native Plant Revegetation Symposium. Society for Ecological Restoration and Management. Madison, Wisconsin.

Keeley, J.E. and S.C. Keeley. 1984. Postfire recovery of California coastal sage scrub. America Midland Naturalist 111:105-117.

Keeley, J.E., B.A. Morton, A. Pedrosa, and P. Trooter. 1985. Roll of allelopathy, heat, and charred wood in the germination of chaparral herbs and suffrutescents. Journal of Ecology 73:445-458.

Keeley, S.C. and J.E. Keeely. 1982. The role of allelopathy, heat, and charred wood in the germination of chaparral herbs. pp. 128-134 *in* C.E. Conrad and W.C. Oechel, technical coordinators. Proceedings of the symposium on dynamics and management of Mediterranean-type ecosystems. Pacific Southwest Forest and Range Experimental Station General Technical Report PSW-58, Berkeley, California.

Keeley, S.C., J.E. Keeley, S.M. Hutchinson, and A.W. Johnson, 1981. Postfire succession of the herbaceous flora in southern California chaparral. Ecology 62:1608-1621.

Kinsinger, Debra. 1993. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications regarding multi-agency revegetation and erosion-prevention efforts in the San Joaquin Hills and environs subsequent to the October, 1993, Laguna Beach fire.

Kirkpatrick, J. and C. Hutchinson. 1977. The community composition of California coastal sage scrub. Vegetation 35: 21-33.

Kirkpatrick, J. and C. Hutchinson. 1980. The environmental relationships of Californian coastal sage scrub and some of its component communities and species. Journal of Biogeography 7: 23-28.

Klopatek,J., R. Oson, C. Emerson, and J. Jones. 1979. Land use conflicts with natural vegetation in the United States. Environmental Conservation: 6: 191-199.

LSA. 1993. (LSA Associates, Inc.). A review of coastal sage scrub restoration projects in Orange and San Diego Counties. Report prepared for the Transportation Corridor Agencies; 7 pages.

MacMillen, R., E. Wohler, and J. Norman. 1991. Status report on a population of the California gnatcatcher inhabiting the Open Space Reserve on the campus of the University of California, Irvine. department of Ecology and Evolutionary Biology, University of California, Irvine. 6 pages.

Meade, R.J. Personal communication pertaining to County of Orange Central Subregional Reserve Design issues.

Munz, P.A. 1974. A flora of southern California. University of California Press, Berkely.

NCCP Scientific Review Committee. 1994. Personal communication, J. Atwood, J. Rotenberry, D. Murphy, regarding draft Central NCCP reserve design issues and impacts by the Eastern Transportation Corridor. July 1994.

Noss, R.F. 1992. Edge effects, roads, and connectivity. Draft sections, in Scientific Review Panel Conservation Guidelines and Documentation, August 1993.

Ogden Environmental and Energy Services Company, Inc. 1992. Population viability analysis for the California gnatcatcher within the MSCP study area. Unpublished draft report prepared for the Clean Water Program, City of San Diego.

O'Leary, J. 1990. Californian coastal sage scrub: general characteristics and considerations for biological conservation. Pages 24-41 in "Endangered plant communitites of southern California", A. Schoenherr (ed.). Southern California Botanists Special Publication Number 3.

O'Leary, J., D. Murphy and P. Brussard. 1992. An NCCP special report: the coastal sage scrub community conservation planning region. Special Report No. 2.

Padly, D. Personal Communnications regarding deer movement in the Windy Ridge area, Orange County. June 1994.

P&D Technologies. 1992. Environmental Impact Report/Environmental Impact Statement for the Eastern Transportation Corridor TCA EIR/EIS 2: Biological Resources Analysis Technical Report. Prepared for the Foothill/Eastern Transportation Corridor Agencies and Federal Highway Administration. May 1992.

P&D Technologies. 1994. Federal Action on the Eastern Transportation Corridor Biological Assessment. Prepared for: Foothill/Eastern Transportation Corridor Agencies and Federal Highway Administration and the California Department of Transportation. February 1994.

Rea, A.M. 1986. Geographic variation in Campylorhynchus brunneicapillum: NW, peninsular and insular races in Phillips, A.R. The Known Birds of Norht and Middle America, Part I. Denver, Colorado (privately published).

Rea, A., and K. Weaver. 1990. The taxonomy, distribution, and status of coastal California cactus wrens. Western Birds 21: 81-126.

Roberts, F. Personal communication regarding Brauntons' milkvetch, many-stemed dudleya and chaparral beargrass. June 1993 - 1994.

Salata, L.R. 1987. Status of the least Bell's vireo at Camp Pendleton, California in 1987. Unpublished report, Sweetwater Environmental Biologists, Spring Valley, California.

Salata, L.R. 1992. A status review of the coastal cactus wren. Unpublished draft report. U.S. Fish and Wildlife Service, Carlsbad, California.

Soule , M.E., D.T. Bolger, A.C. Alberts, J. Wright, M. Sourice, and S. Hill. 1988. Reconstructed dynamics of chaparral-requireing birds in urban habitat lands. Conservation Biology 2: 75-92.

Terrill, S.B. 1988. Cacus wren. Pp. 344-345 in The Audubon Society Master Guide to Birding (J. Farrand, Jr., ed.). Alfred A. Knopf, New York.

The Nature Conservancy. 1993. The status and management of the Least Bell's Vireo in the prado Basin, California, 1986-1992. Unpublished report prepared for the Orange County Water District, Corps of Engineers, California Department of Fish and Game, and U.S. Fish and Wildlife Service.

Troeger, A.R. 1982. Microcommunity patterns in coastal sage scrub. pp. *in* C.E. Conrad and W.C. Oechel, technical coordinators. Proceedings of the symposium on dynamics and management of Mediterranean-type ecosystems. Pacific Southwest Forest and Range Experimental Station General technical Rpeport PSW-58, Berkeley, California.

UNOCAL. 1993. Coyote Hills East. "Habitat Conservation Plan" in support of Section 10a permit application. Unocal Land and Development Company (UNOCAL), Brea, California. July 15, 1993; 93pp.; with appendices.

USFWS. 1993. Proposed endangered status for two plants and Proposed threatened status for four plants from southern California; Astra galus braunfonii; proposed rule. Federal Register 50 CFR Part 17, Volume 57.

USFWS. 1993b. Threatened coastal California gnatcatcher; final rule and proposed special rule, Federal Register 50 CFR Part 17, Volume 58, Number 59.

USFWS. 1994. Biological Opinion on the Effects of the San Joaquin Hills Transportation Corridor on the coastal California gnatcatcher and coastal cactus wren. On file, USFWS Carlsbad Field Office.

UWFWS. 1994b. Final special rule concerning take of the threatened coastal California gnatcatcher. Federal Register 50 CFR Part 17, Volume 58, No. 236.

Westman, W. 1981a. Diversity relations and succession in california coastal sage scrub. Ecology 62: 170-184.

Westman, W. 1981b. Factors influencing the distribution of species of California Coastal Sage Scrub. Ecology 62: 439-455.

Westman, W.E. 1982. Coastal sage scrub succession. pp *in* C.E. Conrad and W.C. Oechel, technical coordinators, Proceedings of the symposium on dynamics and management of Mediterranean-type ecosystems. Pacific Southwest Forest and Range experimental Station General Technical Report PSW-58, Berkeley, California.

Westman, W.E. and J.F. O'Leary. 1986. Measures of resilience: the response of coastal sage scrub to fire. Vegetation 65:179-189.

Westman, W. 1987. Implications of ecological theory for rare plant conservation in coastal sage scrub. Pages 133-149 in "Proceedings Conference on Conservation and Management of Rare and Endangered Plants", T. Elias (ed.); California Native Plant Society, Sacramento.

Willett, G. 1912. Birds of the pacific slope of southern California. Pacific Coast Avifauna No. 7.

Willett, G. 1933. A revised list of the birds of southwestern California. Pacific Coast Avifauna.

Zedler, P.H. 1981. Vegetation changes in chaparral and desert communities in San Diego County, California. pp. 406-430 in D.C. West. H.H. Shugart, and D. Botkin, editors! Forest Succession: Concepts and Applications. Springer-Verlag, New York.

WEST LEG
BIOLOGICAL OPINION

TRANSPORTATION CORRIDOR AGENCIES

January 21, 1999

Mr. Jim Bartell
Assistant Field Supervisor
2730 Loker Ave. West
Carlsbad, CA 92008

Subject: Eastern Transportation Corridor West Leg Biological Opinion (1-14-94-F-16)

Dear Mr. Bartell:

The Transportation Corridor Agencies (TCA) is pleased to have made our final payment to the Nature Reserve of Orange County (NROC) on January 4, 1999. This final payment of $500,000 is in accordance with the payment schedule identified in the U.S. Fish and Wildlife Service Biological Opinion (1-14-94-F-16) for the Eastern Transportation Corridor West Leg and the Central Coastal NCCP Implementation Agreement. This final payment brings TCA's contribution to the NROC to $6.6 million. We at the TCA remain committed to multi-species habitat planning as the best method of protecting Orange County's natural resources while providing for sustainable development. We look forward to seeing our funds being used to manage the 43,000acre reserve.

Should you have any questions or concerns regarding this information, please feel free to contact Laura Coley Eisenberg, Principal of Resource Management at (714) 513-3482.

Sincerely,

Steve Letterly, Director
Environmental Management

Attachment

cc: Terry Dickerson, CDFG (5-139-93)
Fari Tabatabai, ACOE (94-245-BH)
Ron Thronton, NGKE
Laura Coley Eisenberg

$1,262,750,597.70
FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCY
TOLL ROAD REVENUE BONDS SERIES 1995A (FIXED RATE)
AND
$245,600,000
FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCY
TOLL ROAD REVENUE BONDS

$93,400,000 Series 1995B	**(Variable Rate)**	**(MGT)**
$61,400,000 Series 1995C	**(Variable Rate)**	**(CS)**
$61,400,000 Series 1995D	**(Variable Rate)**	**(IBJ)**
$29,400,000 Series 1995E	**(Variable Rate)**	**(BNP)**

DISBURSEMENT REQUEST NO. 565

Bank of New York, Western Trust Company, a successor trustee (the "Trustee") under the Master Indenture of Trust and the First Supplemental Indenture of Trustee each dated as of May 15, 1995 and the Second Supplemental Indenture of Trust dated as of May 15, 1995 as amended by the First Amendment to the Second Supplemental Indenture, dated as of June 21, 1995 (collectively, the "Indenture"), each by and between the Trustee and the Foothill/Eastern Transportation Corridor Agency (the "Agency"), hereby is requested and instructed to pay to the parties set forth in Appendix 1 hereto, from the respective accounts in the **Construction Fund** established pursuant to the Indenture, the respective amounts specified.

The undersigned is an Authorized Agency Representative as defined in the Indenture and certifies that said amounts are now due and owing, are properly payable as a Cost of the Pledged Facilities, any Special Project, or any proposed addition to, or betterment, improvement, or enlargement of the Pledged Facilities or any portion of any of the foregoing (as defined in the Indenture) from the account specified and have not been previously the subjects of any Disbursement Request.

Dated: 12/16/98

FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCY

by: Marybeth Hudson
Authorized Agency Representative

by: Eileen J. Garcia
Authorized Agency Representative

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Disbursement Request #: 565
FETCA

APPENDIX I

NAME OF PAYEE	AMOUNT OF PAYMENT	NAME OF ACCOUNT	ADDRESS/WRITING INSTRUCTIONS	TYPE OF PAYMENT	DESCRIPTION
Nature Reserve of Orange County for the USFW Service	$500,000.00	FTE Variable Rate Construction General Acct # 419688	Nature Reserve of Orange County Bank of America South County RCBO ABA 121000 58 Acct 06944 1 7405	Wire	Biological opinion West Ley 1-14-94-F-16

Please transfer funds on 1/4/99.

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HISTORY OF TRANSACTIONS LIST AS OF 01/07/99 POSTINGS OF 01/01/99 - 01/08/99
ACCT 419688 F/E 95 VAR RATE CONST-GENERAL REPORT TYPE: A

POST-DTE	TYPE	RG	UNITS	INC CASH	PRIN CASH
[redacted]/04/99	SALE	51	593.20	.00	.00
BNY HAMILTON TRSY MONEY FD PREMIER # 74				593.20	
CUS # S99990560 SEC # 9999056					
ITC: 000 PTC: 800 CP: 0 B/C: ZERO DC: 18					
TRN#:990040010 TD/DOR:01/04/99 CSD:01/04/99					
01/04/99	SALE	01	318,430.34	.00	318,430.34
BNY HAMILTON TRSY MONEY FD PREMIER # 741					
CUS # S99990560 SEC # 9999056					
ITC: 000 PTC: 800 CP: 0 B/C: ZERO DC: 18					
TRN#:990040011 TD/DOR:01/04/99 CSD:01/04/99					
01/04/99		00	.00	.00DR	500,000.00DR
BANK OF AMERICA - SOUTH COUNTY RCBO					
ACCT # 0694417405					
A/C NAME NATURE RESERVE OF ORANGE CNTY					
ITC: 000 PTC: 720 CP: B/C: ZERO DC: 00					
TRN#:990040012					
01/04/99		00	.00	.00	7,061.12
EARNINGS TRNSFR FR 419703 TO 419688 /					
PER SEC 7.7 2ND SUPP INDENT					
ITC: 000 PTC: 730 CP: B/C: ZERO DC: 00					
TRN#:990040013					
[redacted]04/99		00	.00	.00	43,327.01
EARNINGS TRNSFR FR 419679 TO 419688 /					
PER SEC 7.7 2ND SUPP INDENT					
ITC: 000 PTC: 730 CP: B/C: ZERO DC: 00					
TRN#:990040014					
01/04/99		00	.00	.00	128,346.25
EARNINGS TRNSFR FR 419706 TO 419688 /					
PER SEC 7.7 2ND SUPP INDENT					
ITC: 000 PTC: 730 CP: B/C: ZERO DC: 00					
TRN#:990040015					
01/04/99		00	.00	.00	2,242.08
TRANSFER FR 419679 TO 419688					
ITC: 000 PTC: 730 CP: B/C: ZERO DC: 00					
TRN#:990040016					
01/05/99	PURCH	01	497,757.92	.00DR	497,757.92DR
BNY HAMILTON TRSY MONEY FD PREMIER # 741					
CUS # S99990560 SEC # 9999056					
ITC: 000 PTC: 960 CP: 0 B/C: ZERO DC: 18					
TRN#:990050010 TD/DOR:01/05/99 CSD:01/05/99					
01/05/99	DIV	01	.00	671.02	.00
BNY HAMILTON TRSY MONEY FD PREMIER # 741					
[redacted] # S99990560 SEC # 9999056					
ITC: 050 PTC: 000 CP: B/C: ZERO DC: 18					
TRN#:990050011					

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Field Office
2730 Loker Avenue West
Carlsbad, California 92008

July 13, 1994

Colonel Michael R. Robinson, District Engineer
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053-2325

Attn: Mr. Bruce Henderson

Re: Biological Opinion on the Effects of the Eastern Transportation Corridor (ETC), West Leg, on the Coastal California Gnatcatcher; Orange County, California (1-14-94-F-16)

Dear Colonel Robinson:

This Biological Opinion responds to your January 14, 1994 request to the Fish and Wildlife Service (Service) for formal consultation, pursuant to Section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act). In March, the Service determined that additional information was needed regarding the impact of the ETC project on Orange County's Natural Community Conservation Plan (NCCP) Program before the Service would be able to proceed with completion of the biological opinion. This information was received by the Service on June 7, 1994.

The Service listed the coastal California gnatcatcher (Polioptila californica californica), hereinafter referred to as "the gnatcatcher" as a threatened species, on March 25, 1993. On May 2, 1994, the listing was invalidated by the United States District Court of Columbia on the basis that the Secretary of the Interior failed to obtain and make available for public review and comment the data underlying a published scientific report on the specific taxonomy of the gnatcatcher. On June 16, 1994, Judge Sporkin granted a stay of his earlier decision to vacate the listing of the gnatcatcher, allowing the gnatcatcher to retain its threatened status while the Service made the data in question available to the public for review and comment. On June 2, 1994, the Service published a 60 day Notice of Availability (Notice) of the data in the Federal Register. In compliance with the Judge's order, the Secretary of the Interior must make a determination whether the listing should be revised or revoked in light of his review of the data and public comments received no later than 100 days following the published date of the Notice. This 100 day period concludes on September 10, 1994.

The referenced project may adversely affect the gnatcatcher, and its coastal sage scrub habitats in the project area and environs. The project may also adversely affect an avian species being considered for imminent listing by the Service, the coastal cactus wren (Campylorhynchus brunneicapillus couesi), which is also associated with coastal sage scrub; we have included technical assistance recommendations concerning the effects of the project on this species in the opinion. At issue herein, are impacts to the gnatcatcher that may result from direct, indirect, and interrelated or interdependent actions in association with the project that are enabled or regulated by the U.S. Army Corps of Engineers and implemented by one or more or its agents (e.g, California Department of

Transportation, [Caltrans], Transportation Corridor Agencies [TCA], private construction firms, private parties).

This Biological Opinion was prepared using the following information: 1) Eastern Transportation Corridor, Final Environmental Impact Report/Environmental Impact Statement; Foothill/Eastern Transportation Corridor Agency; May, 1992; 2) Biological Resources Analysis Technical Report, P&D Technologies; May 1992; 3) Supplemental Draft Environmental Impact Study; Foothill/Eastern Transportation Corridor Agency; January 1993; 4) Biological Assessment of the Eastern Transportation Corridor for the West Leg; Foothill/Eastern Transportation Corridor Agency; February 1994; 5) Natural Communities Conservation Planning (NCCP) Process Guidelines, including Attachment A: Conservation Guidelines and all attached and referenced documents, prepared by California Department of Fish and Game and California Resources Agency, November 1993 (hereinafter referred to as "Conservation Guidelines"); 6) County of Orange Coastal and Central NCCP/HCP Preliminary Reserve Design and Supporting Documentation; County of Orange; April 22, 1994; 7) biological opinion on the effects of the Eastern Transportation Corridor on the Coastal California gnatcatcher and Brauntons' milkvetch, (on file); 8) various communications, including additional data and information developed between March through June 1994 by the Corps of Engineers and/or their agents (on file); and 9) Other biological references (see below, "Literature Cited and References").

Biological Opinion

It is the opinion of the Service that the proposed project, including the mitigation and avoidance measures as required by the Final EIS/EIR, and Biological Assessment, and as modified by additional mitigation measures proposed by the U.S. Army Corps of Engineers and their agent, the Transportation Corridor Agencies (USACOE 1994), is not likely to jeopardize the continued existence of the coastal California gnatcatcher. Critical habitat for this species has not been proposed and, therefore, no critical habitat would be modified.

This Biological Opinion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions of the County of Orange, presented to the Service on April 22, 1994. If these conditions change substantially, reinitiation of formal consultation may be required, pursuant to 50 CFR 402.16.

Description of the Proposed Action

The Transportation Corridor Agencies (TCA) and Caltrans propose to authorize and have built a multiple lane tollway that would extend from State Route 91 to Interstate 5 in northeastern Orange County. The ETC facility would consist of three legs, the North, East and West Legs. The West Leg, which is the subject of this biological opinion, is a locally funded project with no connections to the Interstate 5 Freeway. The North and East Legs connect with Interstate freeways and are the subject of a separate formal consultation conducted with the Service by the Federal Highway Administration.

The West Leg would extend from its interchange with the North and East Legs at the East Orange Interchange south to its terminus south of I-5. The West Leg would traverse parts of Peters Canyon and the Tustin Plain and would have no interchange with I-5. The West Leg would include a total of four general purpose lanes and two high occupancy vehicle (HOV) lanes which may be either concurrent (one in each direction) or reversible. The West

Leg would be approximately 5.3 miles in length and have a grading width that varies from approximately 500 to 2,200 feet.

As part of the proposed project, the U.S. Army Corps of Engineers or its agents (specifically TCA) have agreed to implement the following mitigation measures (discussed in more detail in the EIS and Final Biological Assessment):

1. Preserve an estimated 20 acres of coastal sage scrub at Siphon Ridge;

2. Contribute $500,000 to a conservation fund. The conservation fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The West Leg installment will be paid after the three installments for the North and East Leg, (totaling $1,515,000), have been paid;

3. Ensure the operation of five cowbird traps near Peters Canyon Regional Park/Loma Ridge along the West Leg in perpetuity. Funds will be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity;

4. Restore coastal sage scrub habitat adjacent to the corridor on appropriate graded slopes that are adjacent to permanent open space (Loma Ridge Open Space Unit, Peters Canyon Regional Park), outside proposed developed areas;

5. Provide 1 bridge structure and 4 culverts at least 54" in diameter along the West Leg, at the dimensions and locations specified in USACOE 1994, to enhance wildlife crossing;

6. Revegetate the area disturbed by construction of the bridge/wildlife crossing at Station 2701 with habitat indigenous to the area. The revegetation plan will be approved by the Service prior to the construction of the crossings. The revegetation effort will be considered acceptable if:

   a. the habitat is occupied by breeding pairs of gnatcatchers, or;

   b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;

   c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.

7. Obtain wildlife conservation easements for all habitat mitigation areas and movement corridors under the wildlife crossings related to the ETC;

8. Replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project;

9. Implement all mitigation measures that are implied or identified in the Technical Studies or EIS, as referenced in the EIS pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or environs;

10. Mitigate light and glare impacts as identified in the EIS;

11. Provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities will not occur unless and until construction of the Corridor is ready to begin in earnest. The following construction monitoring measures will be implemented to minimize impacts to gnatcatchers and coastal sage scrub habitat:

    a) Construction will be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field;

    b) The contractor will review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion;

    c) Construction monitoring activities will include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the U.S. Army Corps of Engineers, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation;

    d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas will occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations;

    e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories will be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal cactus wrens may occur, construction will cease pending coordination with the Service.

Effects of Proposed Action on Listed Species

Species Accounts

Coastal California Gnatcatcher

Primarily because of substantial, recent reductions in the habitat and range of the species and the inadequacy of existing regulations, the Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In recognition of the State's Natural Community Conservation Planning Program (NCCP Program), being implemented under the authority of the State of California's Natural Community Conservation Planning Act of 1991 (NCCP Act), and several local government on-going multi-species conservation planning efforts that intend to apply Federal Endangered Species Act standards to activities affecting the gnatcatcher, on December 10, 1993, the Service issued a special rule, pursuant to section 4(d) of the Act, defining the conditions under which take of the gnatcatcher would not be a violation of section 9 (58 FR 65088). Under the special rule, incidental take of the gnatcatcher by land-use activities addressed in an approved Natural Community Conservation Plan (NCCP) would not be considered a violation of section 9 of the Act, provided that the Service determined that the NCCP meets the issuance criteria for an "incidental take" permit, pursuant to section 10(a)(2)(B) of the Act and 50 CFR 17.32 (b)(2). A limited amount of incidental take of the gnatcatchers within subregions actively engaged in preparing a NCCP would also not be considered a violation of section 9 of the Act, provided that such take results from activities conducted consistent with the State's NCCP Conservation and Process Guidelines. The Conservation Guidelines limit this "interim take" to no more than 5% of existing coastal sage scrub habitat.

The coastal California gnatcatcher is a recognized subspecies of the California gnatcatcher (Polioptila californica [Brewster]) and is endemic to coastal southern California and northwestern Baja California, Mexico (American Ornithologists' Union 1983, 1989; Atwood 1980, 1988, 1990, 1991).

The gnatcatcher, a small, gray songbird, is an obligate resident of coastal sage scrub dominated plant communities from Los Angeles County generally south along the coast to El Rosario at about 30 degrees north latitude (American Ornithologists' Union 1957, Atwood 1990, Phillips 1991, Banks and Gardner 1992). The appropriate habitat or habitat type, occurs in a patchy or mosaic distribution. The distribution and size of these patches of suitable habitat varies throughout the range of the species from year to year due to the expressed effects of a variety of variables.

Typical coastal sage scrub habitat constituents are relatively low-growing, drought-deciduous, and succulent plant species. Representative plant taxa in this plant community include coastal sagebrush (Artemisia californica), several species of sage (Salvia spp.), California buckwheat (Eriogonum fasiculatum), California encelia (Encelia californica), various species of cactus and cholla (Opuntia spp.), and several species of Happlopappus (Munz 1974; Kirkpatrick and Hutchinson 1980). Of the 11 subassociations of coastal sage scrub identified by Kirkpatrick and Hutchinson (1977), the gnatcatcher apparently routinely occupies only three of these.

The gnatcatcher is primarily insectivorous and defends territories ranging in size from approximately 2 to 40 acres (Atwood 1990; John Konecny, personal communication). Atwood's comprehensive studies (1988, 1991) and status review (1990) further reveal that the breeding season of the species extends from February through July, and apparently peaks in April.

Juveniles associate with their parents for several weeks or even months after fledgling.

Although considered locally common fewer than 50 years ago (Grinnell and Miller 1944), Atwood (1990, 1992b) estimated that the approximately 1,811 to 2,291 pairs of gnatcatchers remain in the United States population. In the listing package, the Service estimated that there could be as many as 2,562 pairs gnatcatchers in Southern California (58 FR 16742). Although the documented decline of the gnatcatcher undoubtedly is the result of numerous factors, including nest depredation and brood parasitism by the essentially non-native brown-headed cowbird (Molothrus ater), habitat destruction, fragmentation or modification are the principal reasons for the gnatcatcher's current, precarious status (58 FR 16742). It has been estimated that as much as 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a, 1981b; Barbour and Major 1977), leaving coastal sage scrub as one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1987; O'Leary 1990).

For references that contain thorough accounts of the gnatcatcher and its coastal sage scrub habitat, please see the section entitled "References and Literature Cited" at the conclusion of this document.

Species Accounts

Coastal Cactus Wren

The cactus wren (Campylorhynchus brunneicapillus) is a large (length 18-22 cm) member of the wren family (Troglodytidae). Its body plumage is brown above and whitish below. The crown is often a rust-colored brown bordered by a conspicuous whitish eyebrow. The underparts are heavily spotted with black especially on the upper breast. The back is streaked, and the wings and tail are conspicuously barred in black and white (Dunn 1987, Terrill 1988, Rea and Weaver 1990).

One recognized subspecies of cactus wren (C. b. couesi) occurs in the United States. Although Rea (1986) proposed a new subspecies of cactus wren, C. b. sandiegensis (San Diego cactus wren), the American Ornithologists' Union Committee on Classification and Nomenclature has not accepted this proposed change in taxonomy (Dr. Burt Monroe, American Ornithologists' Union, pers. comm.).

On September 21, 1990, the Service received two petitions to list the San Diego cactus wren, C. b. sandiegensis (Rea 1986), as an endangered species pursuant to Section 4 of the Act. Given the biological information contained therein pertaining to sandiegensis and the remainder of the coastal population of the cactus wren, the Service affirmed that the petitioned action may be warranted on January 24, 1991, pursuant to Section 4(b)(3)(A) of the Act. This finding was subsequently published in the Federal Register on March 22, 1991 (56 FR 12146).

Accordingly, it is the coastal population of C. b. couesi that is referred to herein as the coastal cactus wren. A discussion of the nomenclatural history of the coastal California population of the cactus wren is presented by Rea and Weaver (1990).

The coastal cactus wren occurs from southern Ventura County southeast to the Baldwin Hills and the Palos Verdes Peninsula in Los Angeles County, east along the southern flank of the San Gabriel and San Bernardino

Mountains from the northern San Fernando Valley in Los Angeles County to Mentone in San Bernardino County, and south along the coastal slopes and interior valleys west of the Peninsular ranges in western Riverside, Orange, and San Diego Counties to extreme northwestern Baja California, Mexico, in the vicinity of Tijuana and Valle de las Palmas. Maps depicting the distribution of the coastal population of the cactus wren are presented in Garrett and Dunn (1981) and Rea and Weaver (1990).

The geographic isolation of coastal and interior cactus wren populations has been enhanced by the urbanization of southern California and may be facilitating their genetic differentiation (e.g., see Rea and Weaver 1990). The hiatus of suitable habitat formed by the Transverse and Peninsular ranges also serves to maintain and define the disjunct distribution of coastal and interior populations of the cactus wren. In addition, Garrett (1992) concluded that "...the habitat occupied by coastal Los Angeles and Ventura County cactus wrens (never considered to be part of the sandiegensis subspecies) is strikingly different than that occupied by the nearest desert populations in the western Antelope Valley..." and that "...all of the coastal slope populations are now functionally isolated from the desert ones...".

The coastal cactus wren is an obligate, nonmigratory resident of the coastal sage scrub plant community. As its common name suggests, this species is found in association with various species of cacti which provide sites for nesting, roosting, and foraging. The coastal cactus wren occurs almost exclusively in thickets of tall prickly pear (Opuntia littoralis and O. oricola) and coastal cholla (O. prolifera) at elevations up to 450 m above sea level (Rea and Weaver 1990). Rea and Weaver (1990) reported that "The wrens are absent from areas where only low, sprawling cacti grow."

From the early 1880's to the early 1930's, the coastal cactus wren was considered a locally common resident of cactus-dominated habitat from San Diego northwest to Santa Paula in Ventura County (Grinnell 1915; Willett 1912, 1933). However, even during this period, a decline in its status was noted. Dawson (1923) reported that "All proper desert areas west of San Gorgonio Pass are being threatened sharply by the human invasion ... The cactus wren has receded from many parts of the San Diego-Ventura section already, and is in danger of being altogether cut off."

Willett (1933) noted that this species had declined significantly in Ventura County (including its apparent extirpation from Simi Valley) as a result of land clearing activities for agricultural purposes. Grinnell and Miller (1944) characterized the range of the cactus wren on the coastal slope of southern California as "now much restricted as compared with conditions in the 1880's and 1890's, owing to great reduction of requisite habitat..."

The coastal cactus wren has been extirpated from at least 57 sites known to be occupied between 1976 and 1990 (Salata 1992). Many of the sites currently occupied by the coastal cactus wren contain very few pairs and are threatened by urban development, fire, agriculture, and a variety of other factors (Salata 1992). Rea and Weaver (1990) reported that only 10 of 52 sites currently occupied by the coastal cactus wren in San Diego County support five or more pairs. Overall, it is estimated that fewer than 2,400 pairs of coastal cactus wrens remain throughout its entire range (Salata 1992).

Considering the small overall population size of the coastal cactus wren, the precarious status of the coastal sage scrub plant community upon which it depends (O'Leary 1990), and the high degree of wren habitat

fragmentation (Rea and Weaver 1990), further losses of habitat can be expected to have a significant adverse effect on the viability of extant subpopulations. Indeed, the status of the coastal cactus wren is symptomatic of the status of the coastal sage scrub plant community upon which it depends for its continued existence. As was indicated above, this plant community is one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1981a,b, 1987; O'Leary 1990).

Analysis of Impacts

Pursuant to the regulations at 50 CFR 402, the following constitutes an analysis of impacts to the gnatcatcher and coastal cactus wren, in and around the project Action Area, which includes all of the land that would be directly impacted by project construction, and indirectly affected by project construction and operation (e.g. noise effects), or affected because of potential induced growth.

As described above, there may be as many as 2,562 gnatcatchers remaining in the U.S. Of this total, about 757 pairs of gnatcatchers were estimated to occur in Orange County (58 FR 16743), prior to the wildfires that burned a significant amount of Orange County, primarily the coastal areas, in October 1993. Over 7,700 acres of coastal sage scrub burned as a result of the 1993 wildfires in Orange County. An estimated 144 pairs of gnatcatchers were assumed lost (USFWS 1993). The most significant fire damage to the Orange County coastal sage scrub ecosystem occurred in the coastal areas, especially in the San Joaquin Hills area. Impacts to the gnatcatcher and coastal cactus wren resulting from this fire were analyzed in the Biological Opinion for the San Joaquin Hills Transportation Corridor (USFWS 1994). While the Orange County wildfires resulted in significant impacts to the coastal populations of gnatcatchers and cactus wrens, it is expected that these populations will eventually increase as the habitat recovers from the fire (USFWS 1994).

The existing information on the abundance and distribution of the gnatcatcher in Orange County was supplemented by field surveys conducted as part of the NCCP planning effort. Intensive field surveys for the NCCP target species (gnatcatcher, coastal cactus wren and orange-throated whiptail lizard) were conducted in various locations within the coastal sage scrub habitat in the Santa Ana Mountains/Lomas de Santiago Ridge that comprises the reserve planning area for the Central subarea. Field surveys were conducted in 1991 through 1992 and again in the spring of 1994. Field survey locations included lands owned by the Irvine Company (which includes a substantial portion of the Central Subarea) and County regional parks. In 1994, additional survey locations were selected, the basis of selection being those areas determined to have the greatest potential presence of gnatcatchers and cactus wrens. The purpose of these surveys were merely to note the presence or absence of NCCP target species, including the gnatcatcher. No attempt was made to determine the status of individuals sighted; NCCP survey results are reported as sightings. During the 1991-1992 field surveys in the Central subarea, approximately 163 gnatcatchers and 476 cactus wren were sighted. In the 1994 spring surveys, 174 gnatcatchers and 190 coastal cactus wren were sighted (R.J. Meade, Pers. Comm).

As stated above, the gnatcatcher is an obligate species of the coastal sage scrub habitat. Gnatcatchers are found more consistently and in higher densities in subassociations of coastal sage scrub generally found near the coast and lower in elevation (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm.). This is particularly noticeable

in Orange County, where there is a relatively quick transition between the flatter, coastal areas, and the steeper, more mountainous portions of the county in the Santa Ana Mountains. Coastal sage scrub habitat on the northern poriton of El Toro Marine Corps Air Base, in the foothills and adjacent lowland areas of the Loma Ridge, the Peters Canyon Regional Park and adjacent habitat, and the Tustin Ranch area provide an example of this observation. These low elevation, generally flatter contain patches of coastal sage scrub which support significant populations of the gnatcatcher and coastal cactus wren (P&D Technologies 1994, R.J. Meade Pers. Com.), which are likely source populations for the steeper, more mountainous areas to the north and east.

Direct and Indirect Effects

As described in the Biological Assessment, the project will result in the permanent, direct loss of 44 acres of coastal sage scrub habitat. In addition it is estimated that indirect effects of construction and operation may extend up to 1,000 feet from the centerline of the ETC. It is estimated that the construction will directly affect approximately one California gnatcatcher. There are no expected indirect effects to gnatcatchers (P&D Technologies 1994).

Technical Assistance

Coastal Cactus Wren

As described in the Biological Assessment, the project will directly affect one coastal cactus wren. There are no expected indirect effects to coastal cactus wrens (P&D Technologies).

Habitat Fragmentation

While the direct and indirect impacts associated with the West Leg ETC do not pose a significant threat to gnatcatcher populations in the Central Subarea, a serious threat to gnatcatcher populations in the Project Area and environs is habitat fragmentation by the ETC, an effect which tends to disrupt various ecosystem processes.

As discussed previously, habitat destruction and fragmentation are the most significant threats to gnatcatchers (and coastal cactus wrens). As noted by Noss (1992) and Soule et al. (1992), "In the coastal sage of Southern California, a classic sequence of habitat destruction and fragmentation has occurred, involving a reduction in total habitat area and apportionment of the remaining area into small isolated pieces. These pieces, mostly canyons, then continue to lose native vegetation as human activities fragment them internally and nibble at their edges." The NCCP Conservation Guidelines notes that "...threats to coastal sage scrub habitat are more than losses of total habitat area alone. Threats also include losses of distinct subtypes of sage scrub and losses of the special conditions needed to maintain the broad suite of coastal sage scrub-resident species" (CDFG 1993). Habitat fragments have little long-term value for conservation, as smaller habitat areas contain fewer species. Also, smaller habitat patches with proportionally larger perimeters are more vulnerable to deleterious edge effects, although such effects have not yet been documented in coastal sage scrub (Atwood 1990). Fragementation of coastal sage scrub habitat would affect gnatcatchers and other obligate species by isolating populations and preventing dispersal.

In the County of Orange, relatively large, contiguous patches of coastal sage scrub still exist. This is due to a combination of a unique and

proactive approach to land-use planning, which requires dedication of open space in return for development rights, and geography. In the Central subarea, open space dedication has been concentrated in the higher elevation areas adjacent to the Cleveland National Forest, such as the Limestone Regional Park, and large canyon areas, such as Weir Canyon Wilderness Area. These dedicated open space lands contain a significant amount of coastal sage scrub. Development has tended to be more focused in the flatter, lower elevation areas, such as the coast and the inland valley area. The more steep foothill and mountain areas have been traditionally less attractive for development.

The alignment of the West Leg, from its terminus south of Interstate 5 to its interchange and merging with the North Leg ETC, primarily affects existing agricultural land, except as the West Leg approaches the North/East Leg interchange, in the general vicinity east of Peters Canyon Regional Park. Jamboree Road occurs adjacent to and just west of the West Leg ETC and runs parallel to it along its entire length. Jamboree Road presents somewhat of an existing barrier between coastal sage scrub patches in the Peters Canyon/Tustin Ranch area and the Loma Ridge. In addition, the coastal sage scrub habitat matrix in the Peters Canyon and Tustin Ranch areas are almost completely surrounded by disturbed or developed lands in the urban plains of Tustin and Irvine, except along the very western edge of the Loma Ridge, where there is an existing corridor of habitat from Peters Canyon Regional Park to Loma Ridge. The West Leg would bisect this existing corridor of habitat, and would effectively broaden the existing barrier posed by Jamboree Road and existing and future development. As described above, these lower elevation, flatter areas contain significant populations of gnatcatchers (and cactus wren). The West Leg ETC would further isolate the existing coastal sage scrub patches currently found in the Peters Canyon Reservoir Regional Park extending south to the Tustin Ranch area, away from the generally contiguous coastal sage scrub patches along the Loma Ridge and adjacent lowland areas.

Fragmentation of coastal sage scrub would impact gnatcatchers, and other obligate species, by isolating populations and preventing dispersal. The Peters Canyon population of gnatcatchers is connected via an existing corridor with the Loma Ridge populations to the east, and with the Santiago Hills, Irvine and Santiago Oaks Regional Parks populations via an existing corridor to the north. Fragmentation of habitat by the West Leg ETC is expected to inhibit, to some degree, juvenile dispersal of gnatcatchers and thus affect immigration between these subpopulations.

Little is known about juvenile gnatcatcher dispersal, or to what extent large roadways act as barriers to the gnatcatchers. Recent information suggests that 96% of juvenile gnatcatchers disperse within 1.5 miles of their natal territory; 80% disperse within 1.25 miles of their natal territory (G. Braden, USFWS, Pers. Comm). The maximum dispersal distance has been estimated from between 6.3 miles and 13 miles (P.J. Mock, as reported by Noss 1992). Gnatcatchers have been observed flying high over roadways; it may be that they fly high to get a view of where they want to go, and if they see coastal sage scrub, they may move there (Bontrager, Pers. Comm). Since gnatcatchers probably prefer to utilize natural habitats to disperse (Noss 1992), the ETC may act as a barrier, especially in those areas where coastal sage scrub or other native habitat cannot be seen across the corridor. The ETC would be a significant barrier to terrestrial wildlife species, such as the coyote and other large predators and their prey, which would ultimately affect the coastal sage scrub ecosystem, and therefore the gnatcatcher and cactus wren.

In summary, the Service finds that fragmentation of coastal sage scrub habitat by the West Leg ETC poses a threat to the long-term viability of the gnatcatcher and likely other coastal sage scrub-associated species. The habitat patches remaining on the west side of the ETC, including the Peters Canyon Regional Park and the Tustin Ranch areas, would be isolated to some degree from habitat to the east of the corridor.

As noted earlier, another negative result of fragmentation is edge effects. The 5.3-mile long West Leg of the ETC will create artificial edges along its length where it bifurcates natural, undisturbed habitat. The remaining habitat adjoining the ETC will have deteriorated value for wildlife to some distance away from the road due to the adverse affects of noise, air pollution and other factors. The ETC will also be a cause of mortality to a variety of species that move across the landscape.

The artificial edge created by the construction of the ETC could result in increased habitat disruption in areas that were previously inaccessible, and in increased rate of weedy plants (Noss 1992). This effect should be minimized by the revegetation of appropriate graded slopes along the corridor in the vicinity of the Loma Ridge and the Peter's Canyon Regional Park with coastal sage scrub plant species, as proposed as part of the project's mitigation package (USACOE 1994). Coastal sage scrub habitat patches to the west of and isolated by the corridor will also be exposed to the edge effects of future urban development spreading eastward from the Tustin and Irvine urban plains.

Brood parasitism by the brown-headed cowbird (Molothrus ater), could be exacerbated by increased edge effect, likely affecting the reproductive potential of the gnatcatcher. Cowbird parasitism and the direct and indirect impacts of a variety of projects currently limit the distribution and potential expansion of gnatcatchers in Orange County, and in California as a whole. A composite of the best scientific information available suggests that cowbird abatement program proposed as part of the project should alleviate or offset the depression of gnatcatcher productivity that might otherwise result from the direct or indirect effects of the project. Specifically, management programs including cowbird abatement and predator surveillance have been extraordinarily successful in bringing about rapid and statistically significant increases in southern California populations of the least Bell's vireo (Vireo bellii pusillus), a Federally-listed endangered species (Salata 1987; Hays 1989; The Nature Conservancy 1993). More importantly, the available data reveal that 40% of the 10 gnatcatcher nests monitored in the Coyote Hills in Fullerton, California were parasitized by cowbirds (UNOCAL 1993) as were 31% (54) of 176 gnatcatcher nests monitored in Riverside County study sites during the 1992-1993 breeding seasons (G. Braden, Pers. Comm.). It is critical that the reproductive capability of the gnatcatcher and coastal cactus wren be maximized to the extent possible in the short-term and in perpetuity to conserve and recover the local populations of these species. The cowbird management measures proposed as part of the Project (USACOE 1994), will contribute to the elimination of a significant threat to gnatcatcher reproductive capability.

Impacts to Central and Coastal NCCP Reserve Design

The impact of fragmentation of coastal sage scrub and its resident species, including the gnatcatcher, must be analyzed with respect to the County of Orange's NCCP planning efforts in the Central Subregion. As discussed earlier, the listing of the gnatcatcher as threatened was followed by the issuance of a special rule, which, in general, would allow land-use activities associated with a NCCP plan to not be considered a violation of

section 9 of the Act. Orange County is enrolled in the NCCP Program and is currently preparing a NCCP for the Central and Coastal Subregions (as well as for the Southern Subregion); a draft reserve design for the Central and Coastal Subregional NCCP plan has been prepared (County of Orange 1994a).

The NCCP program is intended to establish and manage a viable, permanent system of coastal sage scrub reserves complete with its matrix of other habitats, as well as identify areas that would be appropriate for development within the Central Subregion. The potential for establishment of a viable reserve system in the Central Subregion is the critical element in determining the impact of the ETC on the gnatcatcher; the ETC is a critical factor affecting/influencing reserve design and viability in this area. If it can be found that a viable coastal sage scrub reserve system can be established in the Central Subregion that includes the ETC project and its accompanying mitigation measures, the ETC, (assuming these are adequate means to minimize and mitigate impacts) would likely not impair the overall utility of the habitat in the Central Subregion as essential gnatcatcher population centers.

Central Subregional NCCP Reserve Design

In general, the Central Subregional Reserve Design incorporates already committed open space and areas of open space contemplated in conjunction with the approval of certain development projects in other areas. This open space system would also be augmented by adding reserve areas known to contain significant populations of gnatcatchers and cactus wren, and to provide linkages of natural habitat. The Central Subregion draft Reserve Design incorporates over 21,000 acres of coastal sage scrub and its matrix of other associated habitats, including lands necessary for connectivity (R.J. Meade, Pers. Comm.). Existing, planned and/or proposed regional open space lands in the Central Subregion, as identified in the Biological Assessment, includes a total of 8,379 acres of coastal sage scrub in Weir Canyon Wilderness Park, Santiago Oaks Regional Park, Irvine Regional Park, Open Space Area 31 in Gypsum Canyon, Peter's Canyon Regional Park, the Loma Ridge Open Space system, miscellaneous open space associated with the East Orange General Plan, Limestone Canyon Regional Park, and Whiting Ranch Wilderness Park. Significant areas which were added as reserve unit areas as part of the NCCP planning process include: a significant expansion to incorporate coastal sage scrub and significant gnatcatcher and coastal cactus wren populations south of the existing Loma Ridge Open Space system, including Upper Rattlesnake Canyon, Hicks Canyon, lower Foothills of Bee/Round Canyons - a NCCP reserve unit totalling 2,441 acres in size, with connections to the Limestone Canyon Regional Park NCCP reserve unit, totaling 10,934 acres; and a major expansion of natural habitat around the Weir Canyon Wilderness Area - a NCCP reserve unit totalling 3,923 acres, which would connect with a significant amount of coastal sage scrub habitat in a habitat matrix in the Weir, Gypsum and Coal Canyon areas across the ETC - a NCCP reserve unit totaling about 2,579 acres (R.J. Meade Pers. Comm.). The NCCP Reserve Design also includes a NCCP Reserve Unit that expands the existing Peters Canyon Regional Park to include 490 acres; the Tustin Ranch area, approximately 200 acres in size, is not included in the draft Reserve Design.

Connectivity

Connectivity between habitat reserve areas is essential for maintenance of the viability of the wide range of species inhabiting coastal sage scrub, including the gnatcatcher, over the long-term. As discussed above, while it is not clear to what extent major highways act as barriers to gnatcatcher movement, the ETC would be a significant barrier to terrestrial species, such as the coyote, mountain lion and other large predators and

their prey. The presence of a full compliment of resident species is important to the health and viability of a naturally functioning ecosystem. Since coastal sage scrub habitat patches will be bifurcated by the West Leg of the ETC, connectivity between NCCP reserve units must be provided through wildlife crossings and culverts.

The West Leg of the ETC includes one bridge that would act as a wildlife crossing, along with four large culverts that will enhance wildlife crossing of the corridor. The bridge/wildlife crossing is located at West Leg ETC Station Number 2701, and is approximately 17 feet high, 100 feet wide at the bottom and 240 feet wide at the top, with a traverse of 200 feet. In addition, the West Leg would include 3 culverts at least 54" in diameter and one culvert at least 96" in diameter. The exact locations and specifications of these crossings are described in USACOE 1994. The undercrossing would be located just south of the Loma Ridge NCCP Reserve Unit. The land in the general vicinity of this crossing is mostly agricultural, with patches of coastal sage scrub on the western side. While the undercrossing would not directly connect reserve units, the crossing and the four culverts would all generally connect the west slope of the Loma Ridge NCCP Reserve Unit with the Peters Canyon Reservoir Regional Park area, as enlarged by the NCCP Reserve Unit. While deer or mountain lions will likely not utilize the crossing in the future because of the proximity of anticipated future development, coyotes and other small mammals would be expected to utilize this crossing. The four culverts could also be used by small mammals and provide additional potential for wildlife to traverse the West Leg of the corridor. Coyotes have been known to use culverts with a diameter of 54 inches or greater. However, how effective this bridge undercrossing and culverts will be for wildlife crossing will depend largely upon the extent of development that could occur in the vicinity of the crossing along both sides of the ETC and between the West Leg ETC and the Peters Canyon Reserve Unit. The NCCP Reserve Design Map shows that this area is already mostly disturbed or developed. If this area is not intensely urbanized, coyotes and other small mammals would probably still utilize the bridge/undercrossing to access Peters Canyon or the Loma Ridge NCCP Reserve Units. The revegetation of the crossing area should help to attract wildlife to utilize the crossing. From the Loma Ridge NCCP Reserve Unit, animals would be able to cross the East Leg of the ETC through another wildlife crossing, The Haul Road crossing, into the Limestone Canyon Regional Park, as expanded, NCCP Reserve Unit.

In the short-term, connectivity to coastal sage scrub patches in the Santiago Hills area north of Peters Canyon Regional Park would remain, however, this area is not included as part of the NCCP Reserve Design; therefore long-term connectivity to habitat north of Peters Canyon Regional Park is not assured.

Impacts to Central Subregional NCCP Draft Reserve Design

The West Leg of the ETC bifurcates the Draft NCCP Reserve Design along the west slope of the Loma Ridge. The only NCCP reserve unit included west of the West Leg is the Peters Canyon Regional Park, as expanded by the NCCP Draft Reserve Design. This Reserve Unit totals about 490 acres (R.J. Meade Pers. Com). This reserve unit is already somewhat isolated by Jamborree Road and existing disturbed and/or developed lands. The Tustin Ranch area (about 200 acres), which supports a significant population of gnatcatchers but is totally surrounded by disturbed and/or developed lands, is not included in the Draft Reserve Design. The Peters Canyon Reserve Unit would be further isolated by the West Leg from the rest of the NCCP reserve units, except for the bridge undercrossing that will be constructed, as

described above. If the bridge is utilized by wildlife, especially small mammals and coyotes, the ecosystem functions in this small reserve unit could be maintained, at least in the short-term. As stated above, the degree of use of this crossing will depend upon the degree to which the area between the Peters Canyon reserve unit and the West Leg, a narrow strip of land, would be developed.

Not enough is known about the coastal sage scrub ecosystem to determine what the optimal size of a reserve system should be to ensure long-term viability of this habitat (CDFG 1993). Therefore the long-term viability of the Peters Canyon NCCP reserve unit is unknown. This reserve unit is already almost surrounded by disturbed and or developed lands, which reduces its long-term value for ecosystem function. Given the substantial acreage included in the Central Subregional Reserve Design, which includes almost 22,000 acres in mostly large blocks of habitat, especially in the Loma Ridge (about 2,400 acres) and Limestone Canyon Reserve Units (about 10,934 acres), as well as Weir Canyon Wilderness (about 3,923 acres) and the Windy Ridge Reserve Units (about 2,579 acres), and assuming that the current version of the Draft Reserve Design will not change substantially in these areas, and will be approved and implemented, along with the necessary management activities, the Peters Canyon Regional Park Reserve Unit (about 490 acres) is probably not essential to the long-term maintenance of the coastal sage scrub ecosystem in the Central Subarea.

However, the Peters Canyon NCCP Reserve Unit will be of critical importance as a peripheral reserve. Peripheral reserves that are partially isolated are valuable because they serve to isolate portions of the reserve system from catastrophic events, such as wildfires, that may devastate the larger, contiguous reserve area; residual populations of species that are somewhat isolated from the larger core population are also isolated from a catastrophic event. Therefore, these populations act as residua to repopulate areas affected by catastrophes. The importance of this was illustrated recently in the San Joaquin Hill wildfires in the fall of 1993. As described in the Biological Opinion for the San Joaquin Hills Transportation Corridor, unburned portions of the San Joaquin Hills and adjacent areas are expected to act as residua for the gnatcatcher and cactus to repopulate the burned areas as they begin to recover (USFWS 1994). If the Tustin Ranch area is developed, and not incorporated into the NCCP reserve design, the Peters Canyon Reserve Unit could become an important refugia for the existing gnatcatcher population at Tustin Ranch.

As discussed in the Biological Opinion for the Eastern Transportation Corridor (North and East Legs), the Draft Central Subregional Reserve Design provides substantial acreage both east and west of the North and East Legs of the ETC, and utilizes four wildlife crossings to maintain connectivity between significant reserve units. The Draft Reserve Design, together with these crossings, is intended to allow for the movement of small and large mammals, including predators and their prey base among the Cleveland National Forest, and Reserve Units on both sides of the ETC. In the Biological Opinion for the North and East Legs of the ETC, the Service found that the maintenance/management of the Loma Ridge/Limestone Canyon NCCP reserve units is likely essential to maintenance of gnatcatcher population in the Central Subregion over the long-term (USFWS 1994).

The County of Orange has determined, in consultation with County's NCCP consultant, Dr. Rob Schonholtz, that the ETC would not preclude or prevent the preparation of an effective subregional NCCP program (County of Orange 1994b).

In summary, the Service concludes that the proposed project will not jeopardize the overall survival and recovery of the gnatcatcher or the maintenance of viable populations of the species within the Northern Orange County Santa Ana Mountains and project "Action Area", primarily because of the habitat reserves proposed as part of the draft Central Subregional NCCP Reserve Design, and the substantial impact avoidance and compensation measures incorporated into the project description. Further, given these impact avoidance and compensation measures and the best scientific information, the Service concludes that the project-related bifurcation, fragmentation and the removal of coastal sage scrub habitat, likely will not impact the overall utility of the Northern Orange County Santa Ana Mountains as important, and probably essential, coastal cactus wren and gnatcatcher habitats and population centers. This conclusion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions, presented to the Service on April 22, 1994. If these conditions change or if subsequent information is received that determines that the NCCP reserve design is not valid, then this conclusion would also be invalidated.

Technical Assistance

Coastal Cactus Wren

The proposed project effects described above for the gnatcatcher are similar to those likely to affect the coastal cactus wren.

Consistency with NCCP Guidelines

In addition to reviewing the project for its impacts to the NCCP Planning Process ongoing in Orange County, the Service has reviewed the ETC project for consistency with the NCCP Process and Conservation Guidelines. The project applicant, TCA, has enrolled the ETC in the Central and Coastal NCCP Planning Effort, and is participating in the NCCP planning process. In general, the Service concludes that the ETC is generally consistent with the Guidelines and with the Central and Coastal Subregional NCCP. Specifically, the Service concludes that project-related impacts:

1) will not foreclose future conservation planning efforts until such time as an NCCP has been completed and long-term enhancement and management programs are formulated. The Central and Coastal Subregional NCCP is being prepared concurrent with plans for the ETC. The NCCP plan is currently in the design phase, which includes the ETC alignment and associated mitigation measures. As discussed in the biological opinion for the East and North Legs of the ETC, the alignment was shifted approximately 500 feet east, in order to reduce impacts to the Central Subregion NCCP reserve design, and to lessen impacts to significant populations of gnatcatchers and coastal cactus wrens. The wildlife crossings provided on all three legs of the ETC will maintain connectivity between NCCP Reserve Units. The project, including the proposed mitigation package, will provide funding necessary to assist in providing for the perpetual enhancement and management of coastal sage scrub habitat within the Central Subregion.

2) will not result in an interim loss equal to, or exceeding, 5% of the coastal sage scrub in any one subregion. The loss of coastal sage scrub by the West Leg ETC project would represent approximately 0.2 percent of the coastal sage scrub within the Central Subarea (P&D Technologies 1994).

3) are, to the maximum extent practicable, limited to areas with smaller populations of target species. While the ETC has been in the planning process for a number of years, it is also being planned concurrent with the

Central and Coastal Subregional NCCP. Areas of major biological importance, such as the Weir Wilderness Park and the Lomas Ridge/Siphon Ridge areas have been avoided to the maximum extent possible by project design and alignment changes. NCCP target species are generally present along the alignments of the West, North, and East Legs of the project. However, out of an estimated eight populations of California gnatcatcher that are concentrated in the subregion (i.e. Weir/Santiago Regional Park, Peters Canyon, Irvine Park, Loma Ridge, Rattlesnake Reservoir, Siphon Reservoir, Aqua Chignon Wash and scattered locations in Limestone Regional Park), the project avoids all, except for a portion of the Siphon Reservoir population. The West Leg directly impacts only one gnatcatcher, and one cactus wren.

4) do not, to the maximum extent practicable, disproportionately affect specific subunits of the environmental gradient in each subregion (as defined by vegetation subcommunity, latitude, elevation, distance from coast, slope, aspect or soil type. The ETC, as an essentially linear project, traverses a variety of vegetation communities, elevations, slopes, aspects and soil types (P&D Technologies 1992).

5) do not compromise the NCCP effort to protect, prior to completion of a subregional plan, areas of higher long-term conservation value as defined by the extent of coastal sage scrub habitat, proximity of that habitat to other habitat, the value of the habitat as landscape linkages or corridors, or the presence of sensitive species. While the Service only recently received some of the Central Subregional NCCP data from the County of Orange, and has not been able to determine the long-term conservation value of lands within the Central subregion, the Central Subregional draft reserve design has attempted to identify and include in the NCCP reserve, those areas that would appear to be of high value for long-term conservation (notable exceptions to this are the Tustin Ranch area and portions of the East Orange Planning Area). In addition, by incorporating wildlife crossings in strategic locations along the three legs of the ETC, the ETC project provides for the connectivity essential to maintaining the long-term health and viability of the NCCP reserves. The revegetation and preservation measures which are proposed as a part of the project promote coastal sage scrub and biological values to help maintain and potentially enhance target species and their occupation of the southern foothills of the Santa Ana Mountains. The program will help facilitate gnatcatcher movement among Peters Canyon, Loma Ridge, Rattlesnake Canyon, Hicks Canyon and Siphon Ridge as well to the east at Aqua Chignon Wash.

6) do not compromise the NCCP effort to direct development pressure to areas that have lower conservation value. Much of the coastal sage scrub habitat in the North Orange County Santa Ana Foothills is in committed open space or existing conservation areas, as augmented by the Central Subarea NCCP reserve design. The ETC will not necessarily direct development pressure towards (or away from) areas of higher long-term conservation value. Subregional planners have the task of identifying areas of long-term conservation value (the Reserve system) to steer development pressure into areas of lower conservation value within the North Orange County Santa Ana Foothills and federal "Action Area" through the continued NCCP effort.

7) do not compromise the NCCP effort to ensure that all interim habitat losses are adequately mitigated and that said mitigation contributes to the interim subregional mitigation program that will be subsumed in the long-term subregional NCCP. As is indicated above, the project, including the proposed compensation measures, will enhance the NCCP's goal to provide for the perpetual enhancement and management of coastal sage scrub, gnatcatcher and coastal cactus wren conservation areas within the Central subregion.

In addition, the Service concludes that the management and restoration measures that have been developed for this project constitute special mitigation measures, as required for the NCCP Program (CDFG 1993). The Conservation Guidelines emphasize the importance of management and restoration research to subregional NCCP planning and further state that such efforts are "essential to the adaptive management of coastal sage scrub habitat". It is further recognized that such efforts "undertaken as mitigation during the interim program will add to the overall ability of these conservation tools to be employed more successfully in the future" (CDFG 1993).

In summary, the Service concludes that the loss of the habitat within the project footprint and the overall direct and indirect effects of the project will not result in the extirpation of the Northern Orange County Santa Ana Mountains populations of the gnatcatcher. Given the commitment of the U.S. Army Corps of Engineers and the applicant to provide the resources to conduct and fund the restoration, enhancement and management activities for coastal sage scrub habitat in the Central Subregion, and the perpetual management activities proposed, the Service concludes that project related impacts likely will not jeopardize the survival or recovery of the gnatcatcher.

Cumulative Impacts

Cumulative effects are those impacts of future State, local government, and private actions affecting endangered and threatened species that are reasonably certain to occur in the project "Action Area". Future federal actions will be subject to the consultation requirements established in Section 7 of the Endangered Species Act (Act) and, therefore, are not considered cumulative to the proposed action.

The majority of activities anticipated to affect this species within the foreseeable future are local projects with no direct Federal involvement. A large number of projects that lack a Federal nexus also have occurred or are proposed within the current range of the gnatcatcher. These projects could result, overtime, in significant cumulative effects to the gnatcatcher. However, private projects with no Federal nexus are subject to certain other regulatory constraints of the Act. For example, Section 4 of the Act requires the Service to list species that are threatened or endangered, and section 9 of the Act prohibits the unlawful "take" [e.g., harm, harass] of listed species "by any 'person', including private individuals and entities."

Anticipated prohibitions against "take" and a desire to engage in proactive planning have prompted efforts by local governments and large land owners to develop Habitat Conservation Plans (HCPs), pursuant to authorization for incidental take under section 10 of the Act. In addition and as discussed within this document, The Resources Agency, the Department of Fish and Game, together with local governments, landowners and environmental groups and in cooperation with the Service, are together developing a Natural Communities Conservation Plans that would cover most of Orange County, including the project area. The efforts of all parties, working cooperatively with the agencies, and combined with current federal protection for the gnatcatcher that limits loss of coastal sage scrub habitat to no more than 5% during the planning stages are intended to provide mitigation for project-related impacts to the gnatcatcher, coastal cactus wren, orange-throated whiptail, and the entire suite of sensitive species resident in coastal sage scrub in the future. However, in the absence of NCCPs/HCPs incorporating substantive impact avoidance and compensation measures, the Service believes that habitat destruction,

cowbird parasitism, and indirect impacts resulting from a variety of individual projects will effect the distribution and potential expansion of gnatcatchers throughout their historic range.

Nearly all of the land in the "Action Area" and in the Central Subregion that is not developed is within jurisdictions that have enrolled in the NCCP Program. As a result, all such lands are subject to the requirements of the the special rule, the Conservation Guidelines and other requirements of the NCCP process. This ensures that future land uses in this Subregion will be evaluated as to their impacts to the subregional planning effort, and will be required to provide mitigation to ensure protection of the gnatcatcher and other target species in enrolled areas.

In the event that it is determined that any future proposed development in the "Action Area" would have adverse impacts on gnatcatchers, cactus wrens or other coastal sage scrub sensitive species covered in the NCCP plans, appropriate and adequate mitigation measures would be developed in concert with representatives from the Service and Department of Fish and Game to ensure the protection of those species. For any property in the "Action Area" that is not covered by a jurisdictional enrollment in the NCCP, that property would still be subject to the requirements of CEQA and the Endangered Species Act. The following quotation from the NCCP Process Guidelines addresses this specific issue:

CEQA has a mandatory finding of significance wherever:

> '(a) The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal,...'"(CEQA Guidelines, section 15065)

By that standard, most coastal sage scrub habitat in the NCCP Program area is sensitive and could trigger a CEQA finding of significance. Accordingly, the presence of coastal sage scrub would be disclosed and potential impacts to the gnatcatcher would be revealed.

The EIS for the East and North Legs of the ETC states that potential growth inducing impacts generated by the North and East Legs of the ETC are most likely to affect nearby developed and undeveloped lands located in portions of north and central Orange County. These areas of potential impact include areas within the City of Anaheim's and Orange's sphere of influence (i.e. Blind and Fremont Canyons). The ETC would have no growth inducing impacts along the West Leg, as growth here is already planned as part of the City of Irvine General Plan.

As stated earlier, the NCCP Draft Reserve Design incorporates the Peters Canyon Regional Park and the entire frontal slope area of the Loma Ridge and adjacent lowlands into NCCP reserve units. The NCCP plans for both the Central and Coastal Subregions will address impacts to coastal sage scrub habitat and the three target species. In addition, all future development in the Central and Coastal Subregions will be required to proceed through full environmental review prior to development, consistent with the NCCP Process Guidelines (CDFG 1993).

The Service concludes, given all relevant information and analysis, that the West Leg ETC, together with other proposed and future projects would have cumulatively significant impacts to the gnatcatcher; the West Leg ETC is not anticipated to induce growth in the project "Action Area". However,

all future development and growth in the Central and Coastal Subregions, whether planned or unplanned, will be evaluated to determine its effects on the gnatcatcher, will be required to mitigate these impacts, and will be constrained by the protective mandates of the Act, the NCCP Program, and/or CEQA.

Technical Assistance

Coastal Cactus Wren

Effects to the coastal cactus wren resulting from the above cumulative, growth inducing actions are similar to those described for the gnatcatcher.

Incidental Take

Sections 4(d) and 9 of the Act prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR section 17.3). Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking, provided that such taking is in compliance with the reasonable and prudent measures, and terms and conditions that implement them, as set forth below.

The Service hereby incorporates by reference the mitigation measures from the U.S. Army Corps of Engineers "Description of Proposed Action" into this incidental take statement as part of these "Terms and Conditions". The "Terms and Conditions" reflect the mitigation measures as proposed, with modifications where necessary as determined by the Service. Where these "Terms and Conditions" vary from or contradict mitigation measures proposed under "Description of Proposed Action", specifications in these terms and conditions shall apply.

The U.S. Army Corps of Engineers has a continuing duty to regulate the activity that is covered by this incidental take statement. If the U.S. Army Corps of Engineers fails to require the applicant adhere to the "Terms and Conditions" of the incidental take statement through enforceable terms that are added to the permits, the protective coverage of section 7(o)(2) of the Act may lapse. This incidental take authorization is null and void if the above project description changes, if any mitigation or conservation measure in the EIS, Technical Report, Biological Assessment, or supplemental documentation is not fully carried out or executed, or if any Terms and Conditions or Reasonable and Prudent Measures as defined or described below are not met by the U.S. Army Corps of Engineers, Transportation Corridor Agencies or their designated agents or successors, if the draft NCCP Reserve Design presented to the Service on April 22, 1994 is significantly modified, or if subsequent information received by the Service determines that the April 22, 1994 draft NCCP Reserve Design, incorporating the ETC alignment does not represent a viable reserve system for maintenance of the coastal sage scrub ecosystem.

It is not possible to precisely predict the amount of incidental take that would be associated with ETC construction, for several reasons:

- The number and location of birds will vary from season to season;
- The precise effects on breeding territories near the edge of the grading area are not known; and
- The precise effects of noise and other disturbance on breeding territories outside the area of direct effect, but within the area affected by noise from the Corridor, can only be estimated.

However, given the information in the Biological Assessment, the Service anticipates that the following take could occur as a result of the proposed action:

1. One (1) gnatcatcher may be accidentally injured or killed during project construction or operation activities.

2. An unknown number of gnatcatcher eggs may be destroyed during project construction or operation activities.

3. An unknown number of gnatcatcher fledglings may be destroyed during project activities.

The incidental take statement provided in this opinion satisfies the requirements of the Endangered Species Act, as amended. This statement does not constitute an authorization for take of listed migratory birds under the more restrictive provisions of the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The Service is developing a program to address incidental take under the Migratory Bird Treaty Act.

If, during the course of the action, the amount or extent of the incidental take limit is reached, the U.S. Army Corps of Engineers shall immediately notify the Service in writing. If the incidental take limit is exceeded, the U.S. Army Corps of Engineers or its agents must cease the activity resulting in take and reinitiate consultation with the Service immediately to avoid further violation of Section 9 of the Act. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). The U.S. Army Corps of Engineers and its agents should provide an explanation of the causes of the taking.

Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize incidental take:

1. The U.S. Army Corps of Engineers or its agents shall provide mitigation as described, implied, or suggested in the EIR, Technical Report, Biological Assessment and all other relevant letters and documents to minimize incidental take and to compensate for unavoidable impacts to the species.

2. The U.S. Army Corps of Engineers and its agents shall minimize to the extent possible the killing, harming or harassing of gnatcatchers and removal of coastal sage scrub habitat in conjunction with construction or other site development activities.

3. The U.S. Army Corps of Engineers or its agents shall obtain all applicable state and Federal permits to take the gnatcatcher and

remove coastal sage scrub habitat. The incidental take authorization in this Biological Opinion is summarily revoked in the absence of such permits.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act and to meet the conditions of the conservation plan and conservation agreement, the U.S. Army Corps of Engineers and its agents (e.g., Caltrans, the Transportation Corridor Agencies) are responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. To this end, the U.S. Army Corps of Engineers or its agents shall, at a minimum, provide mitigation as described, implied, or suggested in the EIR, Technical Report, Biological Assessment and other relevant letters and documents to minimize incidental take. In part:

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1. The U.S. Army Corps of Engineers or its agents shall preserve an estimated 20 acres of coastal sage scrub at Siphon Ridge. This preservation program shall be coordinated with the Preservation/Restoration Program associated with the North and East Leg ETC biological opinion;

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2. The U.S. Army Corps of Engineers or its agents shall contribute $500,000 to a conservation fund established by the Service. Payment shall be made to the Fish and Wildlife Foundation. The conservation fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The West Leg installment shall be paid after the three installments for the North and East Leg, (totaling $1,515,000), have been paid;

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3. The U.S. Army Corps of Engineers or its agents shall ensure the operation of five cowbird traps near the Peters Canyon Regional Park/Loma Ridge along the West Leg in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity. Cowbird trapping shall begin during the spring of 1995 and shall continue for a minimum of five months each calendar year, unless the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that a lesser effort is justified during a given calendar year. The design, placement and operation of the traps shall be directed and approved by the Service. A report detailing cowbird management activities shall be provided to the Service within two months of the conclusion of trapping efforts during each and every calendar year. Upon request of the U.S. Army Corps of Engineers or its agents, the Service shall attempt to locate a suitable public or nonprofit foundation or organization that is willing to provide, under contract, the services necessary to meet this mitigation requirement. In any case the U.S. Army Corps of Engineers or its agents shall be responsible for obtaining permission from the Landowner to operate traps on their property;

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4. The U.S. Army Corps of Engineers or its agents shall restore/revegetate coastal sage scrub habitat adjacent to the corridor on appropriate graded slopes that are adjacent to permanent open space (Loma Ridge Open Space Unit, Peters Canyon Regional Park), outside proposed developed areas. The revegetation effort will be considered acceptable if:

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a. the habitat is occupied by breeding pairs of gnatcatchers, or;

b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;

c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago;

5. The U.S. Army Corps of Engineers or its agents shall provide 1 bridge structure at Station 2701 and 4 culverts at least 54" in diameter along the West Leg, at the dimensions and locations specified in USACOE 1994 to enhance wildlife crossing;

6. The U.S. Army Corps of Engineers or its agents shall revegetate the area disturbed by construction of the bridge/wildlife crossing at Station 2701 with habitat indigenous to the area. The revegetation plan will be approved by the Service prior to the construction of the crossings. The revegetation effort will be considered acceptable if:

a. the habitat is occupied by breeding pairs of gnatcatchers, or;

b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring habitat or fully functional coastal sage scrub, or;

c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.

7. The U.S. Army Corps of Engineers or its agents shall obtain a wildlife conservation easements for the movement corridor under the wildlife crossing at Station 2701;

8. The U.S. Army Corps of Engineers or its agents shall replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project. The revegetation effort will be considered acceptable if:

a. the habitat is occupied by breeding pairs of gnatcatchers, or;

b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;

c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago;

9. The U.S. Army Corps of Engineers or its agents shall implement all mitigation measures that are implied or identified in the Technical Studies, Biological Assessment or EIR pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or environs;

10. The U.S. Army Corps of Engineers or its agents shall mitigate light and glare impacts as identified in the EIR or Biological Assessment;

11. The U.S. Army Corps of Engineers or its agents shall provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the West Leg ETC is ready to begin in earnest. The U.S. Army Corps of Engineers shall, to the extent possible, minimize the take of gnatcatchers by employing whatever means or measures that are necessary to prevent to the harm and death of individual birds during grubbing, clearing, and other construction activities. At a minimum, the following construction monitoring measures shall be implemented to minimize impacts to gnatcatchers and coastal sage scrub habitat:

a) Construction shall be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor shall observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field;

b) The contractor shall review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion;

c) Construction monitoring activities shall include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the U.S. Army Corps of Engineers, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation;

d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas shall occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations;

e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories shall be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal

cactus wrens may occur, construction will cease pending coordination with the Service.

30 12. The U.S. Army Corps of Engineers or its agents shall obtain necessary local, State and Federal permits to take, harm, or destroy the gnatcatcher and coastal sage scrub habitats. The authorizations granted herein, including the incidental take authorization, are null and void absent such permits. In particular, the U.S. Army Corps of Engineers shall comply with all pertinent provisions of the Migratory Bird Treaty Act, as determined by the Service (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended).

31 13. The U.S. Army Corps of Engineers, as the Federal action agency, shall retain ultimate responsibility for the implementation of all preceding terms and conditions in the event of financial or institutional incapacity of TCA to perform them.

Disposition of Sick, Injured, or Dead Individuals

The Service's Carlsbad Office must be notified within three working days should any listed species be found dead or injured in or adjacent to the project area. Notification must include the date, time, and location of the carcass, cause of death or injury, and any other pertinent information. If necessary, the Service will provide a protocol for the handling of dead or injured, listed animals. In the event that the U.S. Army Corps of Engineers or it agents suspect that a species has been taken in contravention of any federal, State, or local law, all relevant information shall be reported within 24 hours to the Service's Carlsbad Enhancement Office at (619) 431-9440 or to the Service Division of Law Enforcement, Torrance, California at (310) 297-0062.

Conservation Recommendations

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. The U.S. Army Corps of Engineers and Service should analyze and consider the goals and progress of the proposed NCCP and other conservation planning efforts to insure consistency with Biological Opinions issued in conjunction with Federal projects or projects that are Federally-funded or permitted. This analysis should be extended to a consideration of the success of proposed avoidance and mitigation measures associated with this project and other projects throughout the range of the gnatcatcher.

2. The Service, in consultation with other Federal agencies and working group or recovery team members, should assess the efficacy of various measures for mitigating project-related direct or indirect impacts to gnatcatchers and their habitat. Thus far, it is apparent that successful creation or restoration of coastal sage scrub habitat has been achieved by relatively few revegetation specialists. Because the creation or restoration of coastal sage scrub habitat is often an

essential component of effective mitigation for impacts to said habitat, revegetation methodologies and related data bases warrant close scrutiny and constant refinements.

Conclusion

This concludes the conference on the U.S. Army Corps of Engineers/Eastern Transportation Corridor West Leg Project. As found at 50 CFR 402.16, reinitiation of formal consultation is required if the action is significantly modified from that described above or if new information becomes available on listed species or impacts to listed species. Specifically, if the draft Central and Coastal Subregional NCCP reserve design changes substantially (as determined by the Service), or if analysis of the forthcoming data from the County of Orange refutes the determinations made by the Service at this time, reinitiation of formal consultation will be required. Additionally, should the coastal cactus wren, for which the Service provided technical assistance in this opinion, be proposed for listing by the Service, formal consultation should be initiated immediately.

If you have any questions on this biological opinion, please call me at (619) 431-9440 or Tara Wood of my staff, at (916) 978-4613.

Sincerely,

Gail C. Kobetich

Gail C. Kobetich
Field Supervisor

cc: Steve Letterly, TCA

LITERATURE CITED AND REFERENCES

American Ornithologists' Union. 1957. Checklist of North American Birds, 5th Edition. American Ornithologists' Union, Washington, D.C.

American Ornithologists' Union. 1983. Checklist of North American Birds, Sixth Edition. American Ornitholoists' Union. Printed by Allen Press, Lawrence, Kansas. 877 pages.

American Ornithologists' Union. 1989. Thirty-seventh supplement to the American Ornithologists' Union checklist of North American birds. Auk 106 (3): 532-538

Anderson, E.R. 1991. Habitat Preferences of the California Gnatcatcher in San Diego County. Unpublished M.A. thesis, San Diego State University.

Atwood, J. 1980. The United States distribution of the California black-tailed gnatcatcher. Western Birds 11: 65-78.

Atwood, J. 1988. Speciation and geographic variation in black-tailed gnatcatchers. Ornithological Monographs No. 42. American Ornithologists' Union, Washington, D.C.

Atwood, J. 1990. Status review of the California gnatcatcher (Polioptila californica). Manomet Bird Observatory, Manomet, Massachusetts.

Atwood, J. 1991. Subspecies limits and geographic patterns of morphological variation in California gnatcatchers (Polioptila californica). Bulletin Southern California Academy of Sciences 90 (3) 118-133.

Axelrod, D. 1978. The origin of coastal sage vegetation, Alta and Baja California. American Journal of Botany 65 (10): 1117-1131.

Barbour, M. and J. Major 1977. Terrestrial Vegetation of California. John Wiley and sons, New York.

Benson, L. 1969. The Native Cacti of California. Stanford University Press, Stanford, California.

Braden, G. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications pertaining to the incidence of cowbird parasitism at Riverside County study areas, California; 1992 and 1993.

Braden, G. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications regarding gnatcatcher fledgling dispersal. 1994.

Bontrager, D. 1994. First annual progress report, 1993 California gnatcatcher research activity in the superpark Area of Orange County, California. Unpublished report prepared for the U.S. Fish and Wildlife Service, OMA, Fairfax, Virginia. January, 1994.

Bontrager, D. Personal communications regardings roads as barriers to gnatcatcher movement. 1994.

Bowler, P. 1990. Coastal sage scrub restoration - I: The challenge of mitigation. Restoration and Management Notes 8(2): 78-82.

California Department of Fish and Game. 1993a. Southern California coastal sage scrub Natural Community Conservation Planning Process Guidelines. Amended November, 1993.

County of Orange. 1994a. County of Orange Coastal and Central NCCP/HCP Preliminary Habitat Reserve Design.

County of Orange. 1994b. Letter regarding consistency of the ETC with the County's NCCP Process. On file, USFWS Carlsbad Field Office.

Dawson, W. 1923. The Birds of California. Volume 1. South Moulton Company, San Diego.

Dunn, J., E. Blom, G. Watson, and J. O'Neill. 1987. Cactus wren account. Pp. 318-319 in Field Guide to the Birds of North America (S.L. Scott, ed.). National Geographic Society, Washington, D.C.

Federal Highway Administration. 1994a. Eastern Transportation Corridor Final Environmental Impact Statement. March 1994.

Federal Highway Administration. 1994b. Letter providing supplemental information developed for the mitigation package for the Eastern Transportation Corridor. June 2, 1994.

Federal Highway Administration. 1994c. Letter providing supplemental information developed for the mitigation package for the Eastern Transportation Corridor. July 1, 1994.

Fleisman, E. and D.D. Murphy. 1993. A review of the biology of coastal sage scrub. Draft outline in Southern California Coastal Sage Scrub Natural Communities Conservation Plan, Scientific Review Panel Conservation Guidelines and Documentation. Unpublished report. California Department of Fish and Game, Sacramento.

Freudenberger, D.O., B.E. Fish, and J.E. Keelye, 1987. Distibution and stability of grasslands in the Los Angeles Basin. Bulletin of the Southern California Academy of Sciences 86:13-26.

Garrett, K. 1992. Correspondence to the U.S. Fish and Wildlife Service Dated February 3, 1992. Natural History Museum of Los Angeles County, Los Angales, California.

Garret, K. and J. Dunn. 1981. The Birds of Southern California: Status and Distribution. Los Angeles Audubon Society; 407 pages.

Gary, J.T. 1983. Competition for light and a dynamic boundary between chaparral and coastal sage scrub. Madrono 30:43-49.

Grinnell, J. 1915. A distributional list of the birds of California. Pacific Coast Avifauna No. 11.

Grinnell, J. and A. Miller 1944. The distribution of the birds of California. Pacific Coast Avifauna 27.

Hays, L. 1989. The status and management of the Least Bell's Vireo within the Prado Basin, California, 1986-1989. Unpublished report, California State University, Long Beach Foundation, Lon Beach, California; Dr. Charles T. Collins, Project Director.

Hillyard, D. and M. Black. 1987. Coastal sage scrub revegetation at Crystal Cove State Park, Orange County, California: 1987 update. Proceedings of the Second Native Plant Revegetation Symposium. Society for Ecological Restoration and Management. Madison, Wisconsin.

Keeley, J.E. and S.C. Keeley. 1984. Postfire recovery of California coastal sage scrub. America Midland Naturalist 111:105-117.

Keeley, J.E., B.A. Morton, A. Pedrosa, and P. Trooter. 1985. Roll of allelopathy, heat, and charred wood in the germination of chaparral herbs and suffrutescents. Journal of Ecology 73:445-458.

Keeley, S.C. and J.E. Keeely. 1982. The role of allelopathy, heat, and charred wood in the germination of chaparral herbs. pp. 128-134 in C.E. Conrad and W.C. Oechel, technical coordinators. Proceedings of the symposium on dynamics and management of Mediterranean-type ecosystems. Pacific Southwest Forest and Range Experimental Station General Technical Report PSW-58, Berkeley, California.

Keeley, S.C., J.E. Keeley, S.M. Hutchinson, and A.W. Johnson, 1981. Postfire succession of the herbaceous flora in southern California chaparral. Ecology 62:1608-1621.

Kinsinger, Debra. 1993. U.S. Fish and Wildlife Service, Carlsbad, California. Personal communications regarding multi-agency revegetation and erosion-prevention efforts in the San Joaquin Hills and environs subsequent to the October, 1993, Laguna Beach fire.

Kirkpatrick, J. and C. Hutchinson. 1977. The community composition of California coastal sage scrub. Vegetation 35: 21-33.

Kirkpatrick, J. and C. Hutchinson. 1980. The environmental relationships of Californian coastal sage scrub and some of its component communities and species. Journal of Biogeography 7: 23-28.

Klopatek,J., R. Oson, C. Emerson, and J. Jones. 1979. Land use conflicts with natural vegetation in the United States. Environmental Conservation: 6: 191-199.

LSA. 1993. (LSA Associates, Inc.). A review of coastal sage scrub restoration projects in Orange and San Diego Counties. Report prepared for the Transportation Corridor Agencies; 7 pages.

MacMillen, R., E. Wohler, and J. Norman. 1991. Status report on a population of the California gnatcatcher inhabiting the Open Space Reserve on the campus of the University of California, Irvine. department of Ecology and Evolutionary Biology, University of California, Irvine. 6 pages.

Meade, R.J. Personal communication pertaining to County of Orange Central Subregional Reserve Design issues.

Munz, P.A. 1974. A flora of southern California. University of California Press, Berkely.

NCCP Scientific Review Committee. 1994. Personal communication, J. Atwood, J. Rotenberry, D. Murphy, regarding draft Central NCCP reserve design issues and impacts by the Eastern Transportation Corridor. July 1994.

Noss, R.F. 1992. Edge effects, roads, and connectivity. Draft sections, in Scientific Review Panel Conservation Guidelines and Documentation, August 1993.

Ogden Environmental and Energy Services Company, Inc. 1992. Population viability analysis for the California gnatcatcher within the MSCP study area. Unpublished draft report prepared for the Clean Water Program, City of San Diego.

O'Leary, J. 1990. Californian coastal sage scrub: general characteristics and considerations for biological conservation. Pages 24-41 in "Endangered plant communitites of southern California", A. Schoenherr (ed.). Southern California Botanists Special Publication Number 3.

O'Leary, J., D. Murphy and P. Brussard. 1992. An NCCP special report: the coastal sage scrub community conservation planning region. Special Report No. 2.

P&D Technologies. 1992. Environmental Impact Report for the Eastern Transportation Corridor TCA and Biological Resources Analysis Technical Report. Prepared for the Foothill/Eastern Transportation Corridor Agencies and Federal Highway Administration. May 1992.

P&D Technologies. 1994. Biological Assessment for the West Leg of the Eastern Transportation Corridor. Prepared for: Foothill/Eastern Transportation Corridor Agencies and Federal Highway Administration and the California Department of Transportation. February 1994.

Rea, A.M. 1986. Geographic variation in Campylorhynchus brunneicapillum: NW, peninsular and insular races in Phillips, A.R. The Known Birds of Norht and Middle America, Part I. Denver, Colorado (privately published).

Rea, A., and K. Weaver. 1990. The taxonomy, distribution, and status of coastal California cactus wrens. Western Birds 21: 81-126.

Salata, L.R. 1987. Status of the least Bell's vireo at Camp Pendleton, California in 1987. Unpublished report, Sweetwater Environmental Biologists, Spring Valley, California.

Salata, L.R. 1992. A status review of the coastal cactus wren. Unpublished draft report. U.S. Fish and Wildlife Service, Carlsbad, California.

Soule , M.E., D.T. Bolger, A.C. Alberts, J. Wright, M. Sourice, and S. Hill. 1988. Reconstructed dynamics of chaparral-requireing birds in urban habitat lands. Conservation Biology 2: 75-92.

Terrill, S.B. 1988. Cacus wren. Pp. 344-345 in The Audubon Society Master Guide to Birding (J. Farrand, Jr., ed.). Alfred A. Knopf, New York.

The Nature Conservancy. 1993. The status and management of the Least Bell's Vireo in the prado Basin, California, 1986-1992. Unpublished report prepared for the Orange County Water District, Corps of Engineers, California Department of Fish and Game, and U.S. Fish and Wildlife Service.

Appendix E USFWS Species List

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
PHONE: (760)431-9440 FAX: (760)431-5901
URL: www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0174 February 02, 2015
Event Code: 08ECAR00-2015-E-00374
Project Name: SR-241/SR-91 Express Lanes Connector

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: SR-241/SR-91 Express Lanes Connector

Official Species List

Provided by:

Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
(760) 431-9440
http://www.fws.gov/carlsbad/

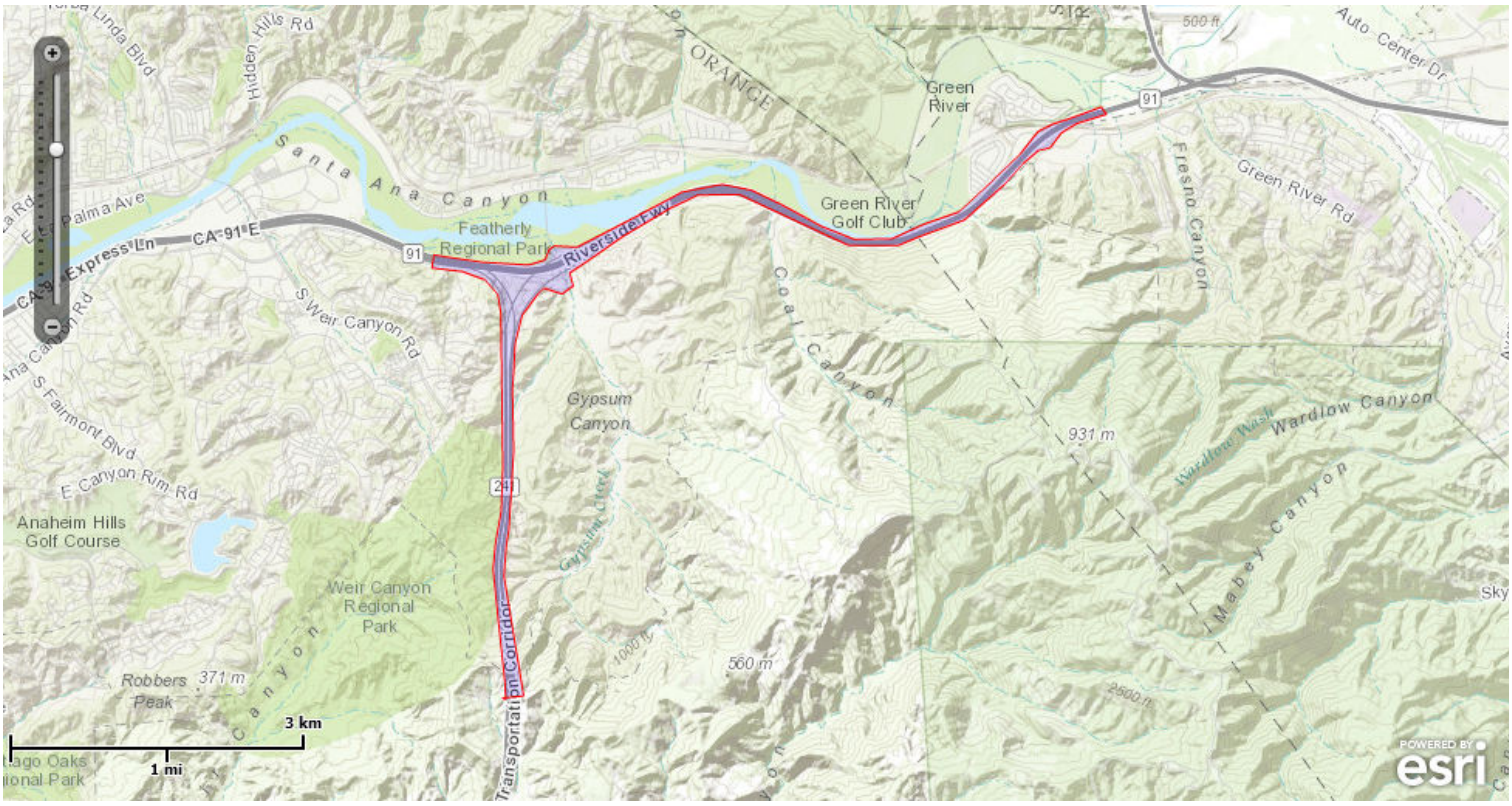
Consultation Code: 08ECAR00-2015-SLI-0174
Event Code: 08ECAR00-2015-E-00374

Project Type: Transportation

Project Name: SR-241/SR-91 Express Lanes Connector
Project Description: Transportation Corridor Agencies (TCA)in corporation with California Department of Transportation propose to construct new direct connectors between SR-241 toll lanes and SR-91 Express lanes. Project is located in Orange County California.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-117.71730679 33.82693942, -117.717303 33.8268166, -117.7176056 33.8269075, -117.71730679 33.82693942)), ((-117.71730679 33.82693942, -117.7173459 33.828207, -117.7182042 33.8348377, -117.7186763 33.8387944, -117.7184188 33.8411827, -117.7177751 33.8441768, -117.7176056 33.848224, -117.717818 33.8623887, -117.7181613 33.8640992, -117.7196204 33.8654533, -117.7221095 33.8662017, -117.7254569 33.8665224, -117.7252402 33.8677339, -117.7234421 33.8674845, -117.7198157 33.8670569, -117.7147281 33.8668075, -117.7129256 33.8672707, -117.7124536 33.8682328, -117.7118957 33.8685535, -117.7093637 33.8684466, -117.7028835 33.871226, -117.6977336 33.8735064, -117.6932704 33.874219, -117.6900089 33.8736846, -117.6867902 33.8724018, -117.6822841 33.8703708, -117.6785934 33.8691593, -117.6743877 33.8692305, -117.6710403 33.8705133, -117.6670062 33.8716892, -117.6642596 33.8737915, -117.6602256 33.8769982, -117.6582086 33.8791003, -117.6566636 33.8797417, -117.654475 33.8803473, -117.6512134 33.8813449, -117.6506555 33.8806698, -117.65396 33.8798147, -117.6556337 33.8789543, -117.6568782 33.8776057, -117.6582086 33.8773189, -117.6598823 33.8761449, -117.6619851

33.8741852, -117.6664054 33.8709427, -117.6713836 33.8694105, -117.6737869 33.8685909, -117.67928 33.8686266, -117.6913821 33.8732944, -117.693485 33.8732926, -117.696017 33.8732231, -117.699064 33.8720117, -117.7043855 33.869357, -117.7080762 33.867219, -117.7101791 33.8660413, -117.7097928 33.8648654, -117.7110374 33.8641188, -117.7130544 33.8646533, -117.713741 33.8640814, -117.7154577 33.8621571, -117.7162301 33.8595912, -117.7164447 33.8563304, -117.7165305 33.8554751, -117.7164018 33.8496319, -117.7169168 33.842555, -117.7172172 33.8409866, -117.7174747 33.8382063, -117.715286 33.8271553, -117.71730679 33.82693942)))

Project Counties: Orange, CA | Riverside, CA

Endangered Species Act Species List

There are a total of 11 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	**Status**	**Has Critical Habitat**	**Condition(s)**
arroyo toad *(Anaxyrus californicus)* Population: Entire	Endangered	Final designated	
Birds			
Coastal California gnatcatcher *(Polioptila californica californica)* Population: Entire	Threatened	Final designated	
Least Bell's vireo *(Vireo bellii pusillus)* Population: Entire	Endangered	Final designated	
Southwestern Willow flycatcher *(Empidonax traillii extimus)* Population: Entire	Endangered	Final designated	
Crustaceans			
Riverside fairy shrimp *(Streptocephalus woottoni)* Population: Entire	Endangered	Final designated	
San Diego fairy shrimp *(Branchinecta sandiegonensis)*	Endangered	Final designated	

Fishes			
Santa Ana sucker *(Catostomus santaanae)* Population: 3 CA river basins	Threatened	Final designated	
Flowering Plants			
Braunton's milk-vetch *(Astragalus brauntonii)*	Endangered	Final designated	
Thread-Leaved brodiaea *(Brodiaea filifolia)*	Threatened	Final designated	
Insects			
Delhi Sands flower-loving fly *(Rhaphiomidas terminatus abdominalis)* Population: Entire	Endangered		
Quino Checkerspot butterfly *(Euphydryas editha quino (=e. e. wrighti))* Population: Entire	Endangered	Final designated	

Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Birds	Critical Habitat Type
Coastal California gnatcatcher *(Polioptila californica californica)* Population: Entire	Final designated

Appendix F Representative Site Photographs

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View to the east of the WB SR-91 connector to SR-241 (left bridge) and the SR-241 connector to the EB SR-91 (right bridge).

View to the west of SR-91 and the EB SR-91 connector to the SB SR-241 (bridge). The WB SR-91 connector to SB SR-241 is on the left.

View to the north of WB SR-91 connector to SR-241.

View to the south of the SR-241 taken from south of the SR-241/SR-91 interchange. The median had nesting California gnatcatchers in 2011 and is the location of Drainage 2 (right).

Appendix G Biological Resources and Project Effects

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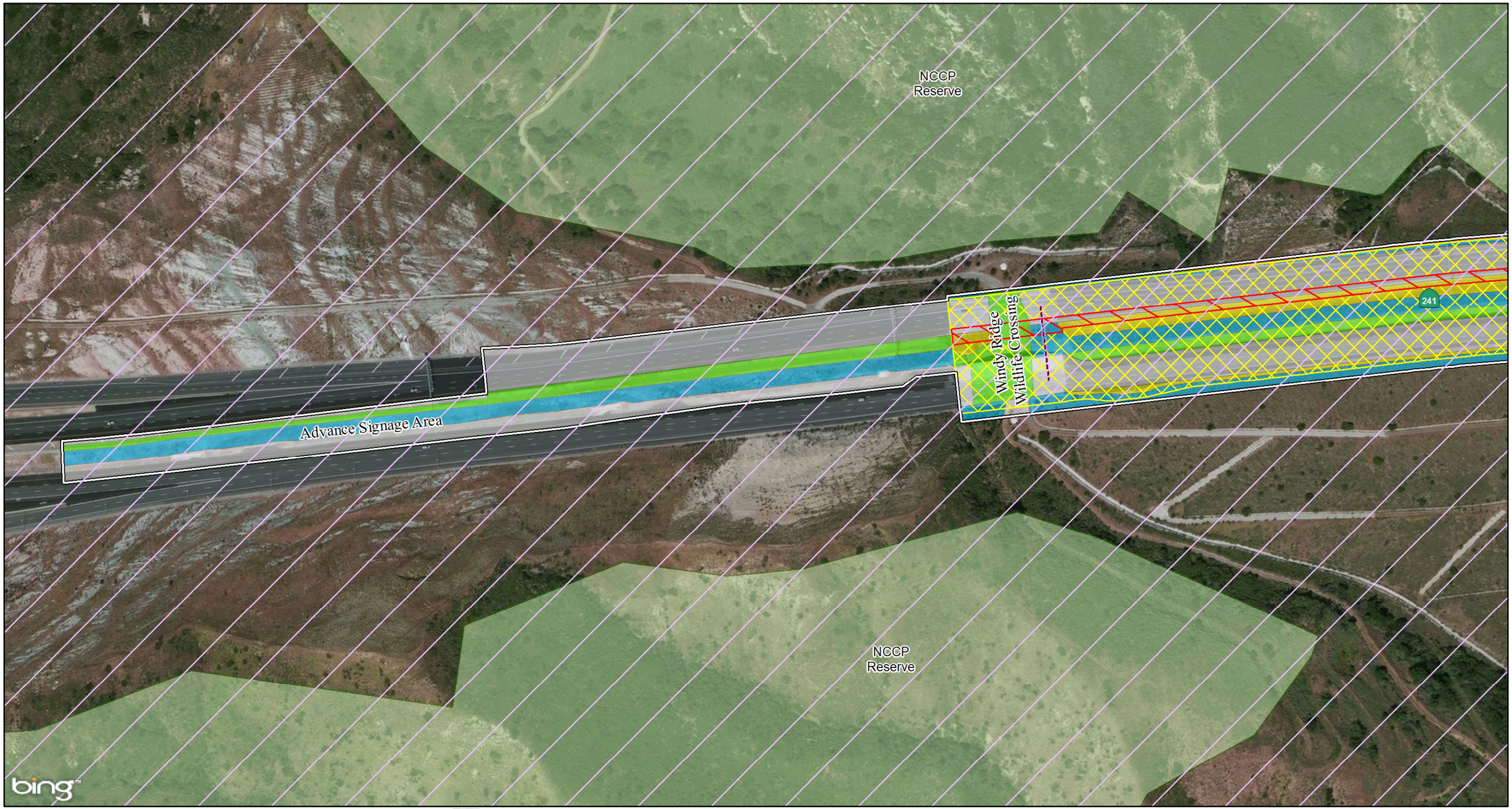

Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
- Nonnative Grassland
- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

- Potential Jurisdictional Nonwetland Waters
- Potential Nonjurisdictional Nonwetland Waters
- Approved Nonjurisdictional Nonwetland Waters
- Potential Jurisdictional Nonwetland Waters Drainage Impact Areas

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- Western Sycamore Tree
- Coulter's Matilija Poppy Observed
- CAGN Use Area Observed
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- Coastal Cactus Wren Nest Remnants
- CAGN Designated Critical Habitat
- Braunton's Milk-vetch Designated Critical Habitat
- Santa Ana Sucker Designated Critical Habitat
- NCCP Plan Area
- NCCP Reserve
- NCCP Existing Use Area

Note: There are no biological resource impacts in the Advance Signage area along SR-91.

0 100 200
FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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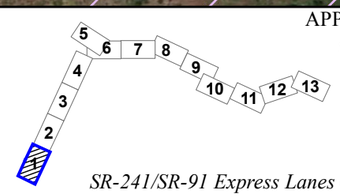
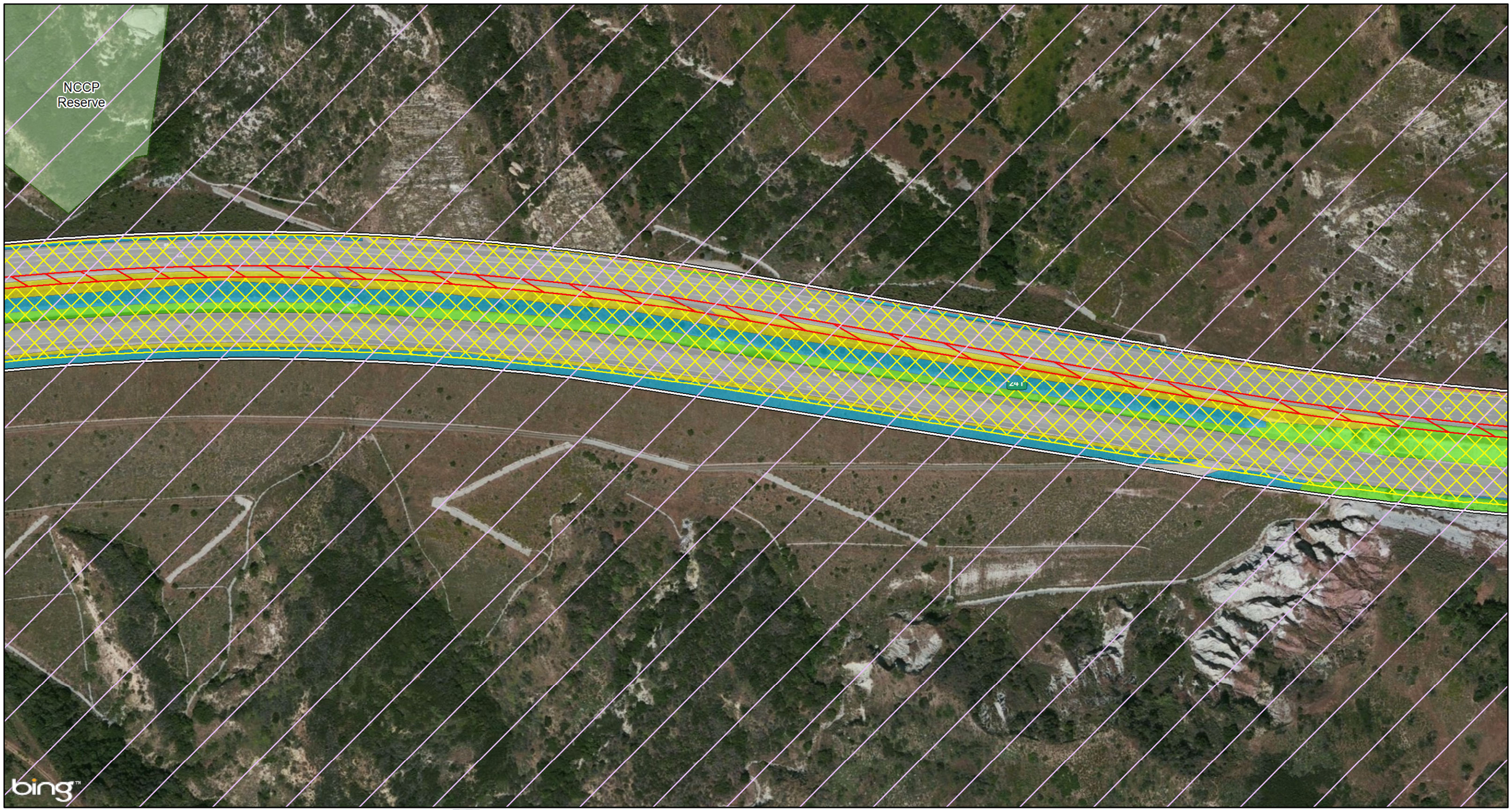


APPENDIX G

Sheet 1 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

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0 100 200
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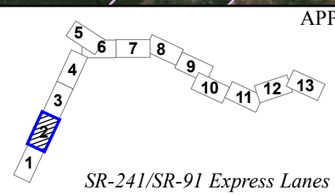
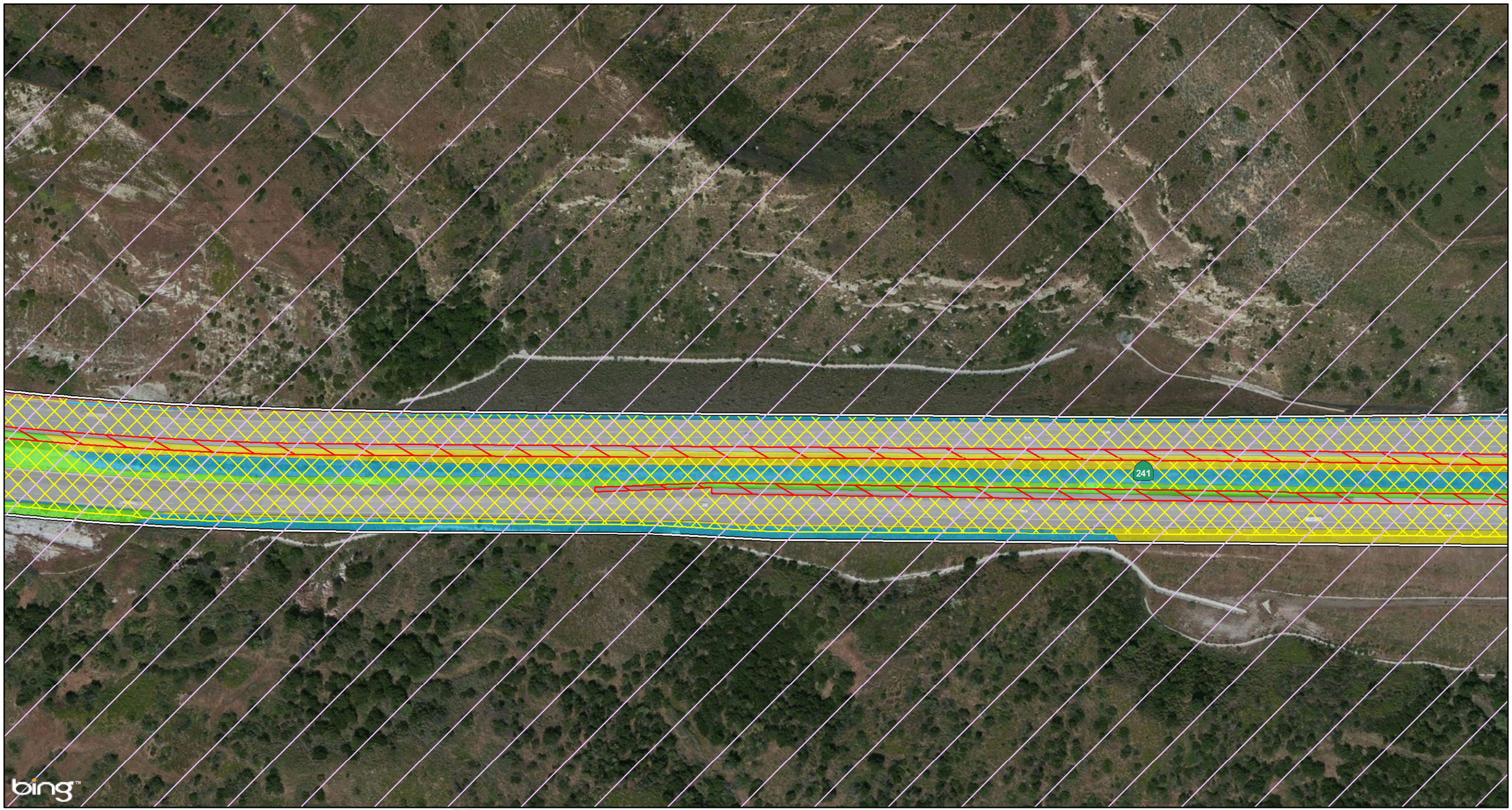


APPENDIX G

Sheet 2 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

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- Chaparral
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- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

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Note: There are no biological resource impacts in the Advance Signage area along SR-91.

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FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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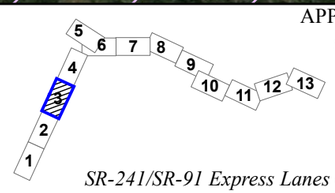
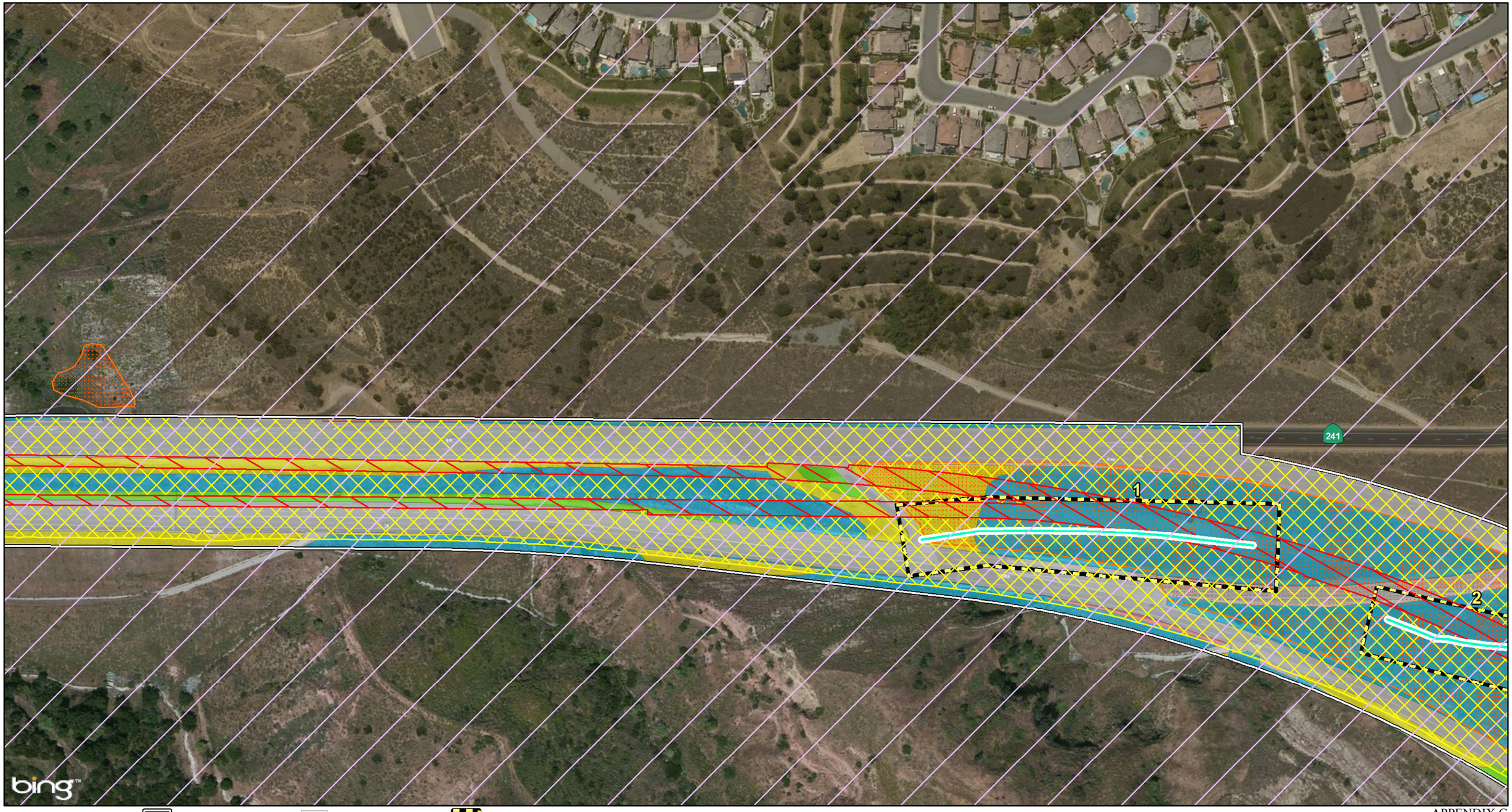


APPENDIX G

Sheet 3 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
- Nonnative Grassland
- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

- Drainage Feature (with ID#)
- CDFW Jurisdiction

USACE Jurisdiction

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Note: There are no biological resource impacts in the Advance Signage area along SR-91.

0 100 200
FEET

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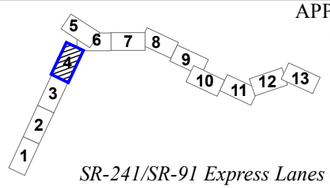
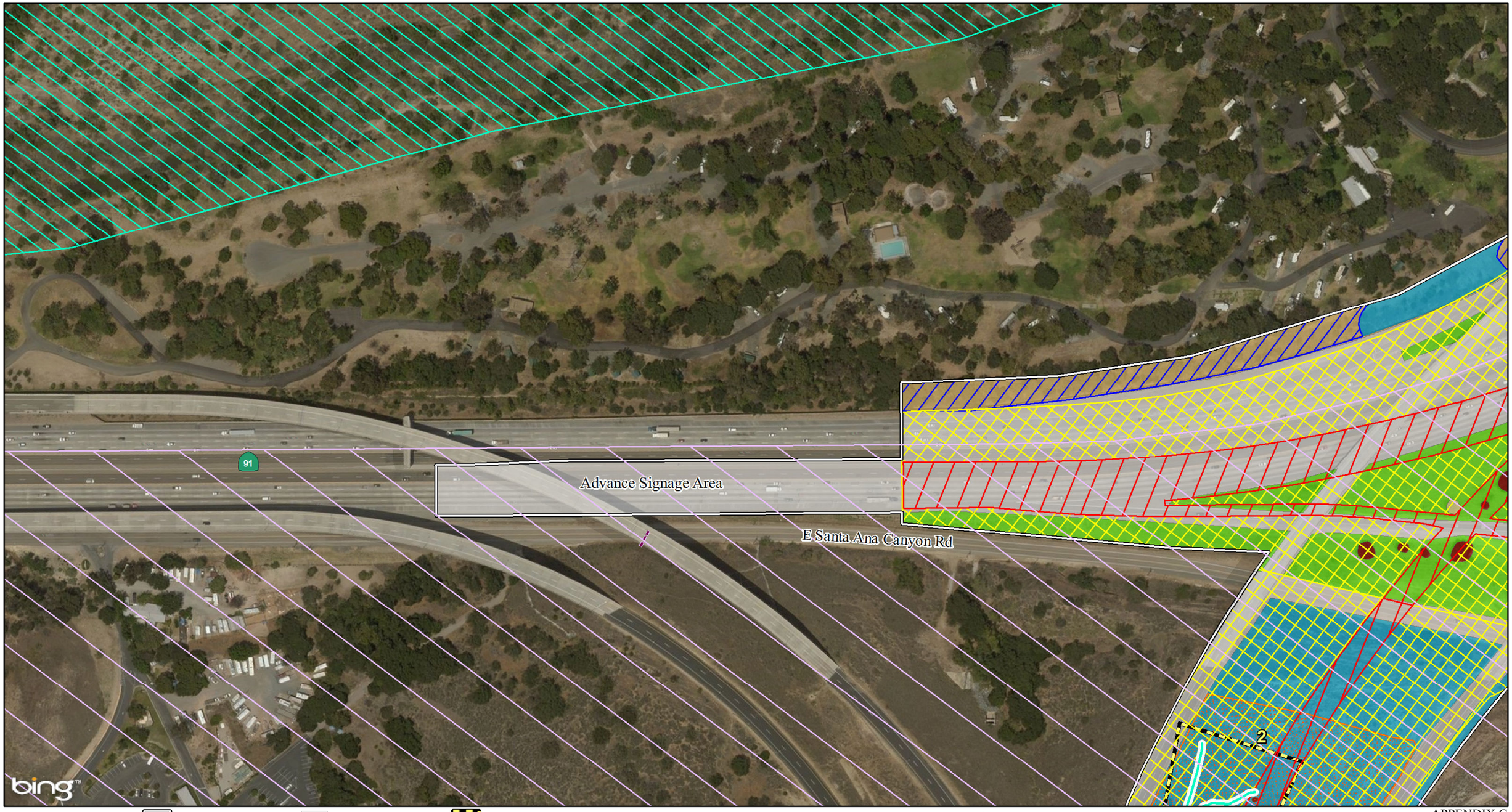


APPENDIX G

Sheet 4 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
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Drainage Feature (with ID#)

CDFW Jurisdiction

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Note: There are no biological resource impacts in the Advance Signage area along SR-91.

0 100 200
FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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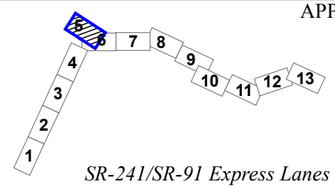
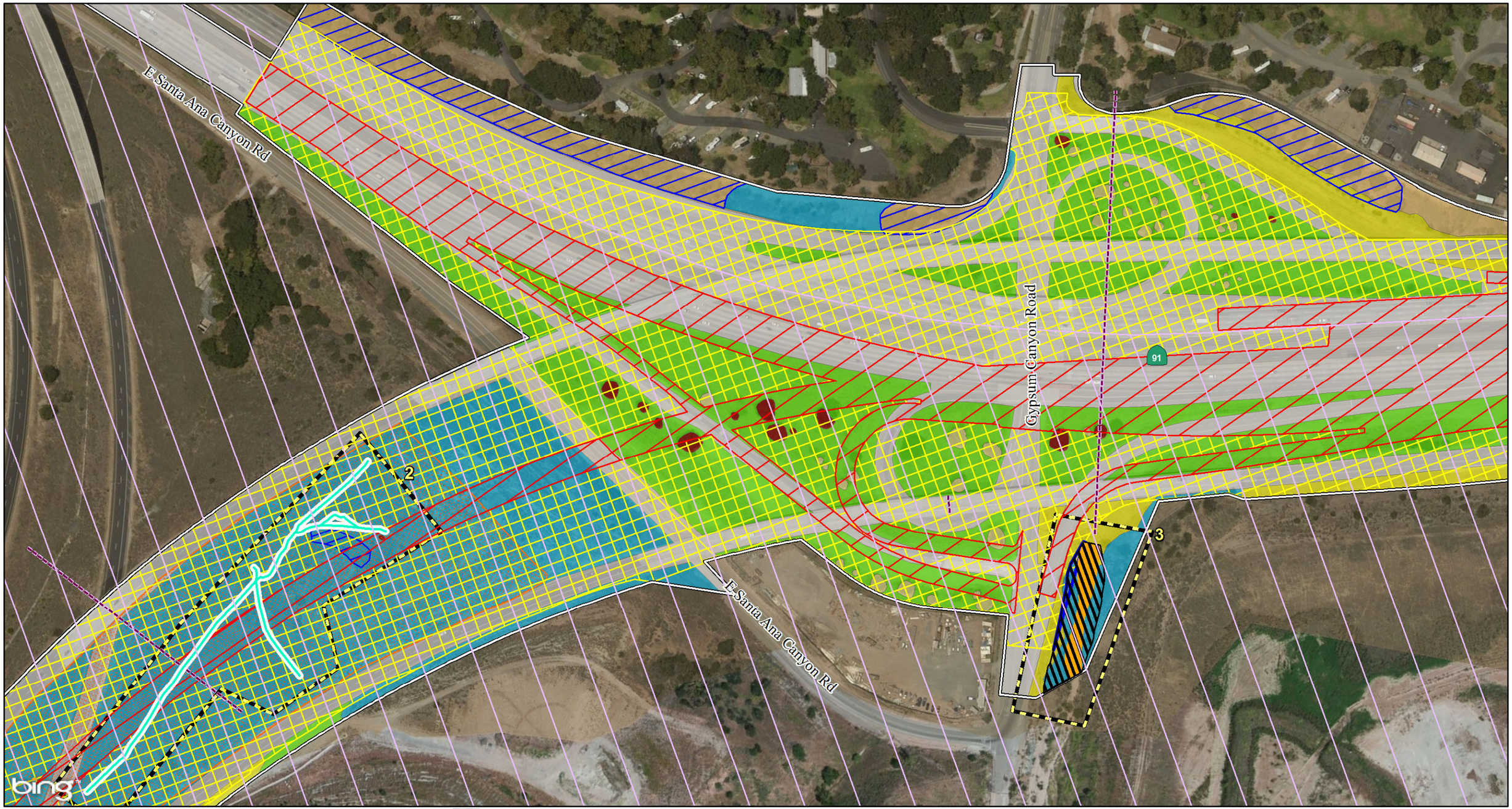


APPENDIX G

Sheet 5 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

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- Chaparral
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- Permanent Impacts
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Drainage Feature (with ID#)

CDFW Jurisdiction

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Note: There are no biological resource impacts in the Advance Signage area along SR-91.

N

0 100 200
FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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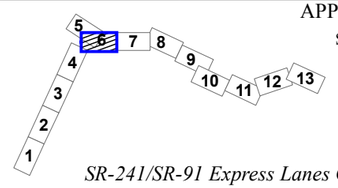
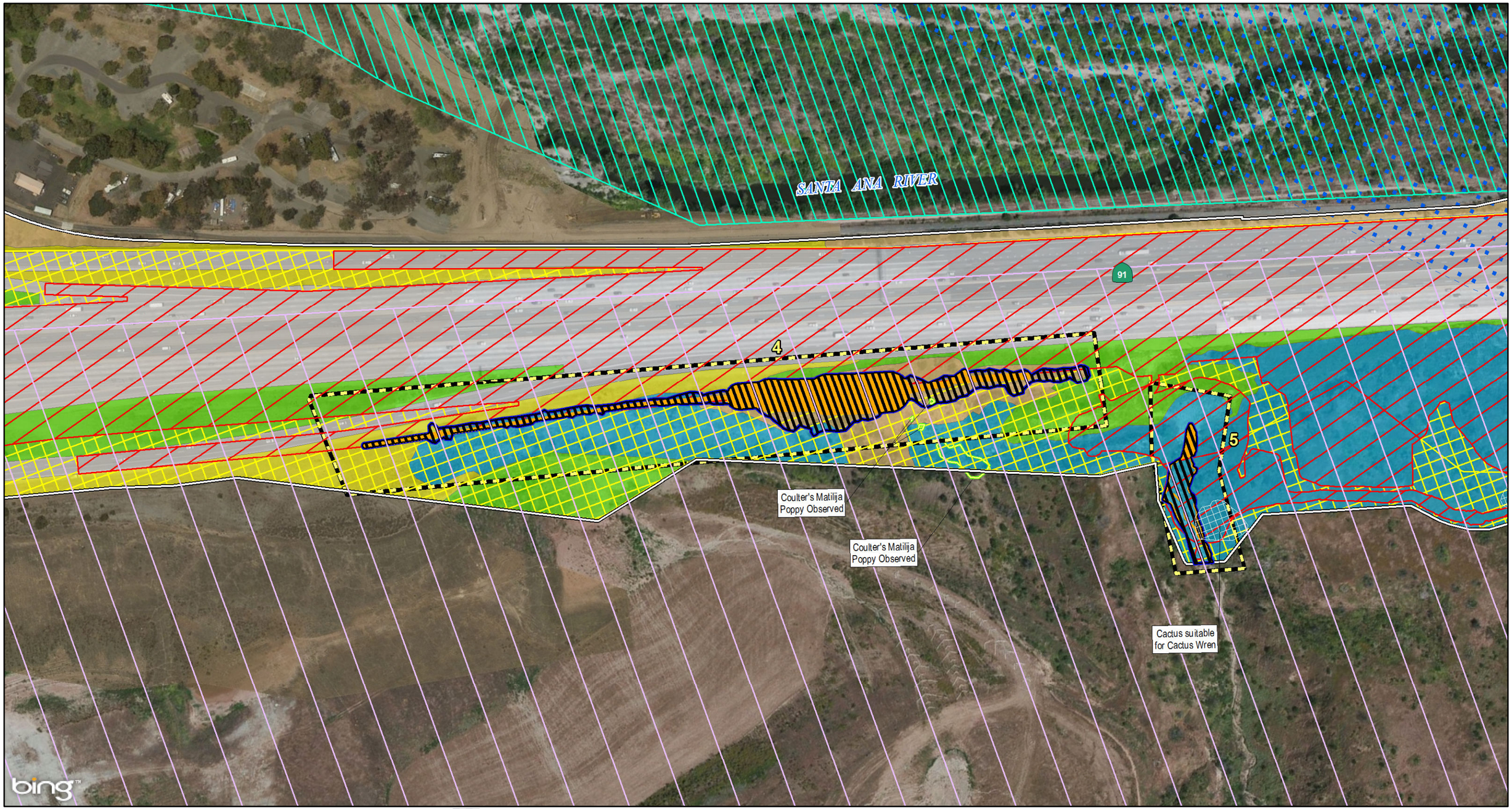


APPENDIX G

Sheet 6 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

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- Chaparral
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- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

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Note: There are no biological resource impacts in the Advance Signage area along SR-91.

0 100 200
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SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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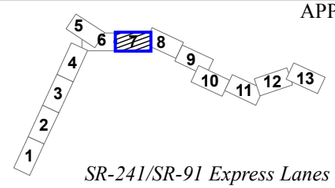
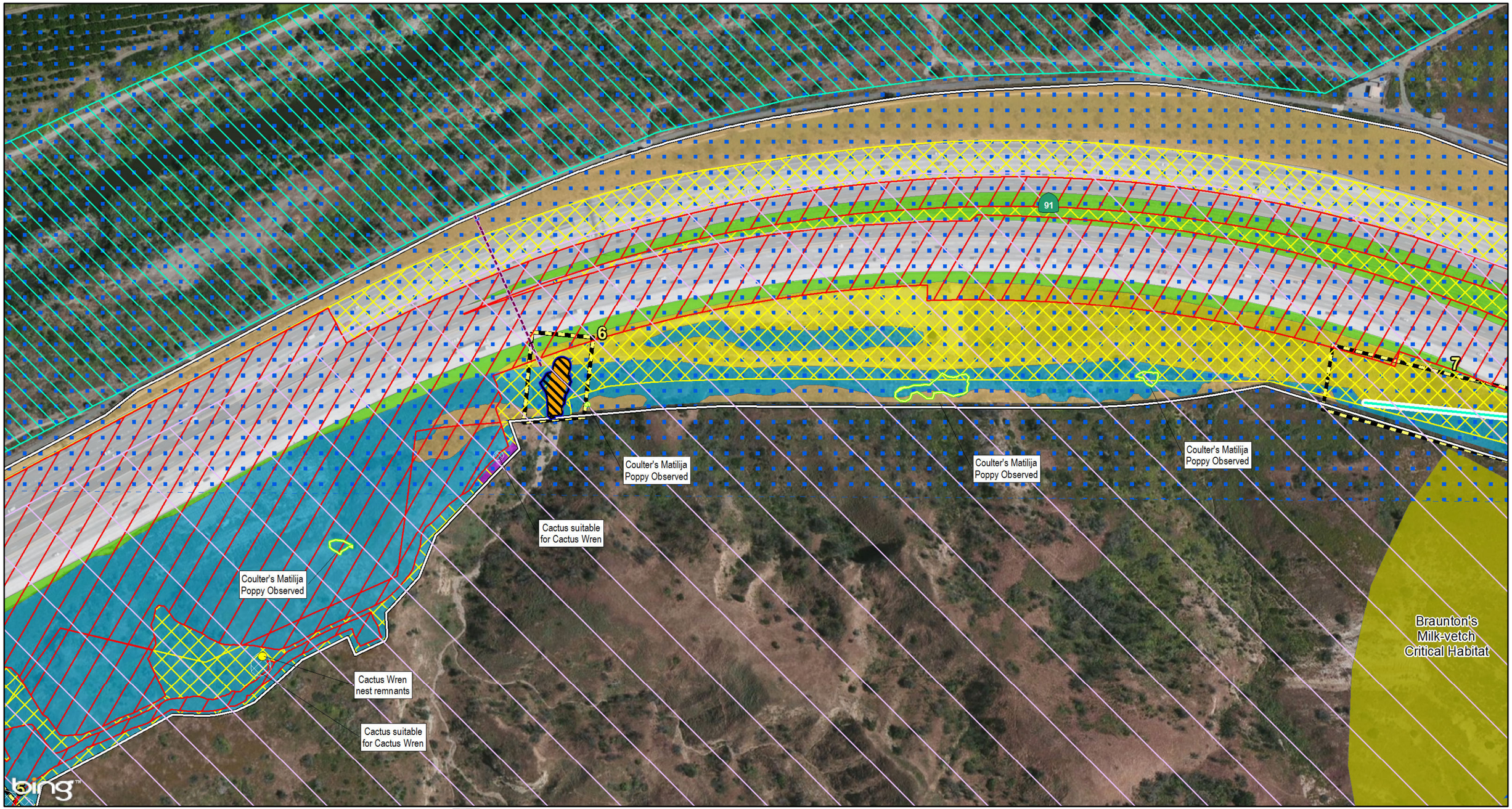


SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

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FEET

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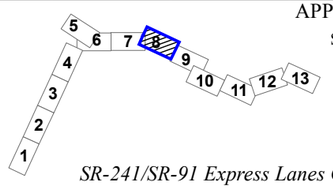
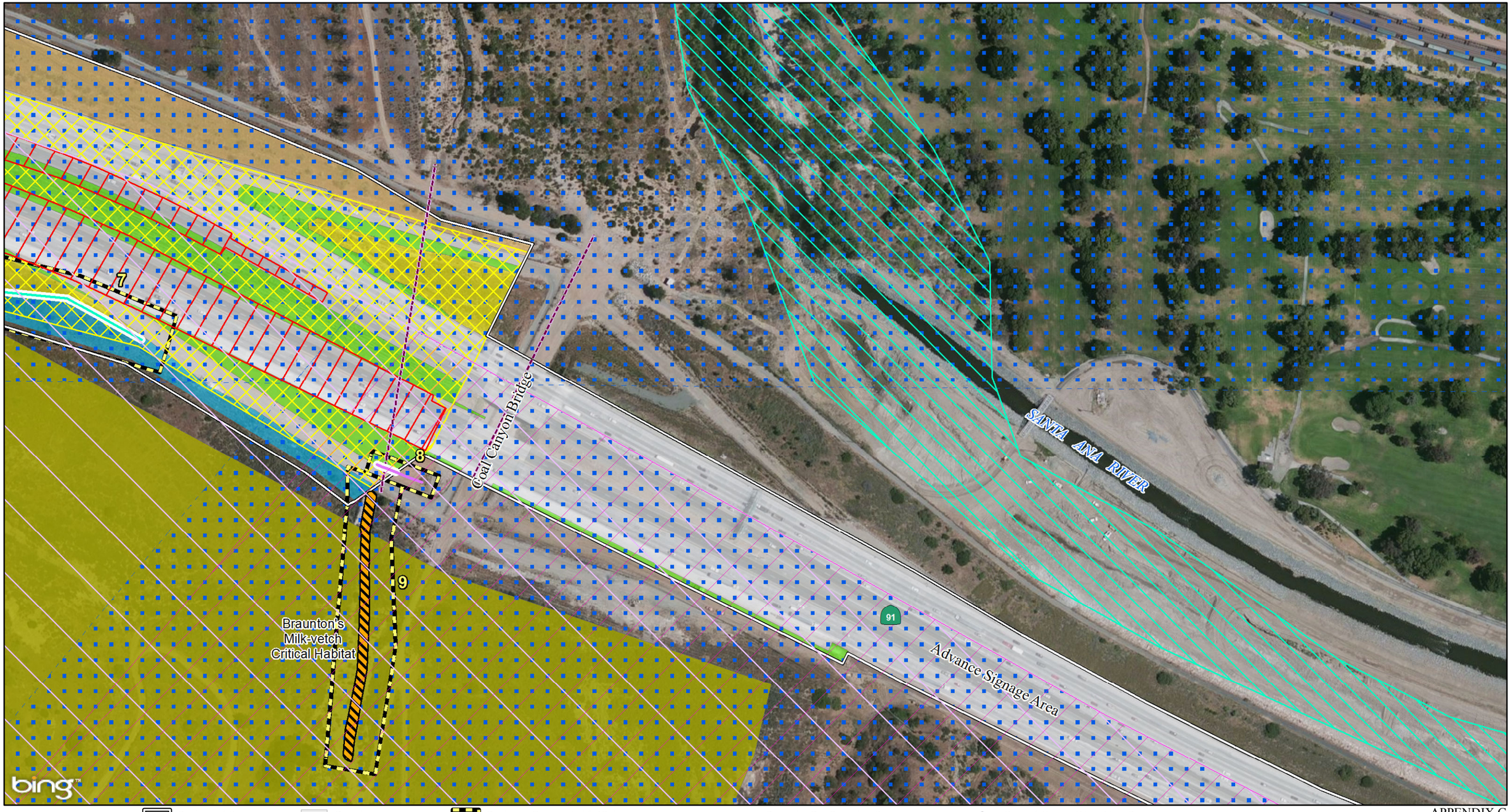


APPENDIX G

Sheet 8 of 13

SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



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0 100 200
FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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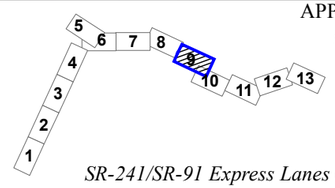

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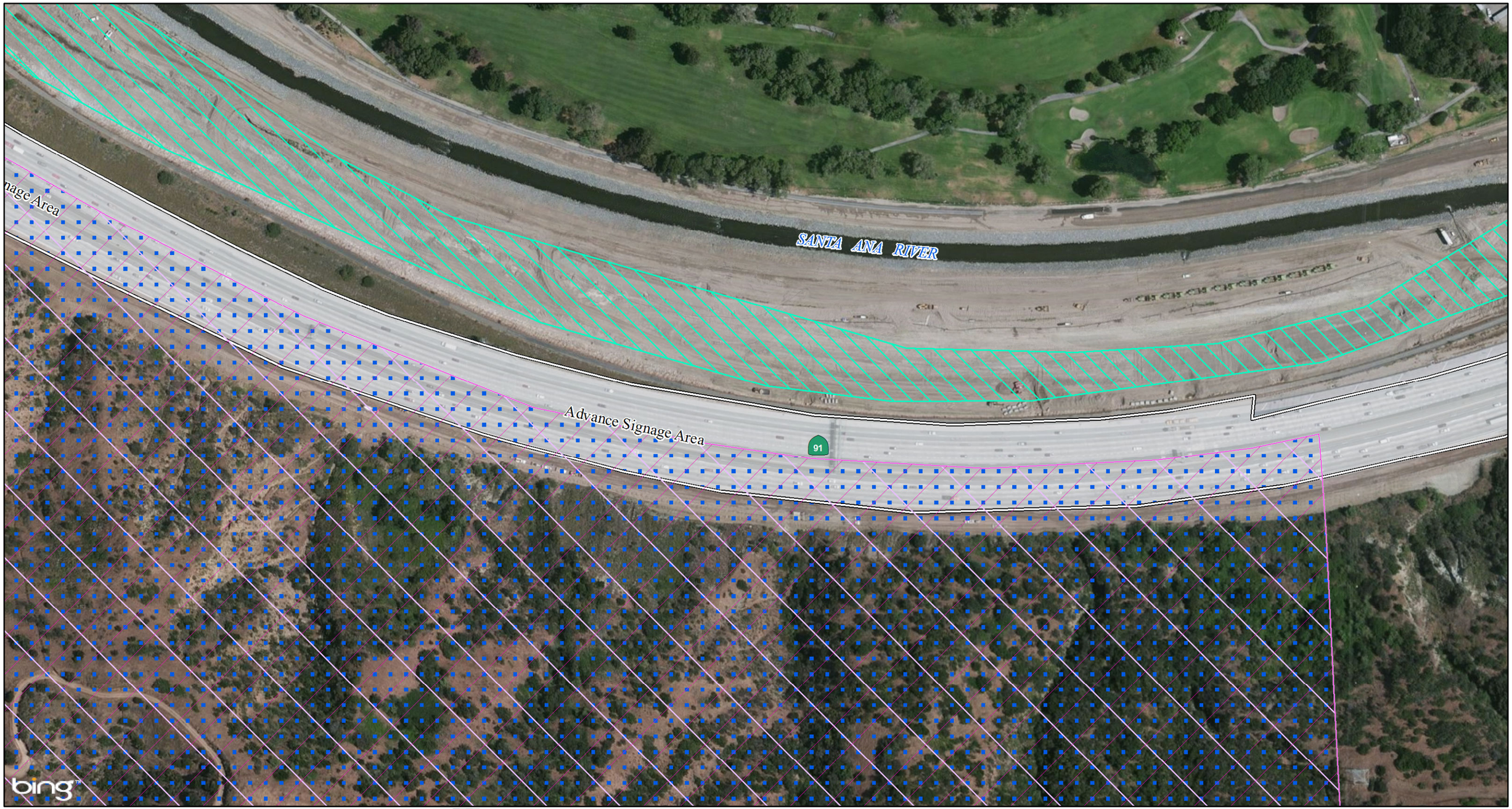
SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects



Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
- Nonnative Grassland
- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

- Potential Jurisdictional Nonwetland Waters
- Potential Nonjurisdictional Nonwetland Waters
- Approved Nonjurisdictional Nonwetland Waters
- Potential Jurisdictional Nonwetland Waters Drainage Impact Areas

- Potential Bat Roosting Sites
- California Black Walnut Observed
- Coast Live Oak Tree
- Western Sycamore Tree
- Coulter's Matilija Poppy Observed
- CAGN Use Area Observed
- Patch of tall (≥ 1 m tall) cactus suitable for coastal cactus wren nesting

- Coastal Cactus Wren Nest Remnants
- CAGN Designated Critical Habitat
- Braunton's Milk-vetch Designated Critical Habitat
- Santa Ana Sucker Designated Critical Habitat
- NCCP Plan Area
- NCCP Reserve
- NCCP Existing Use Area

Note: There are no biological resource impacts in the Advance Signage area along SR-91.

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SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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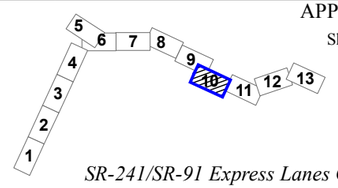

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SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects

Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
- Nonnative Grassland
- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

- Potential Jurisdictional Nonwetland Waters
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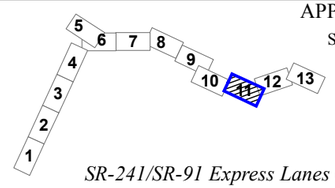
Note: There are no biological resource impacts in the Advance Signage area along SR-91.



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SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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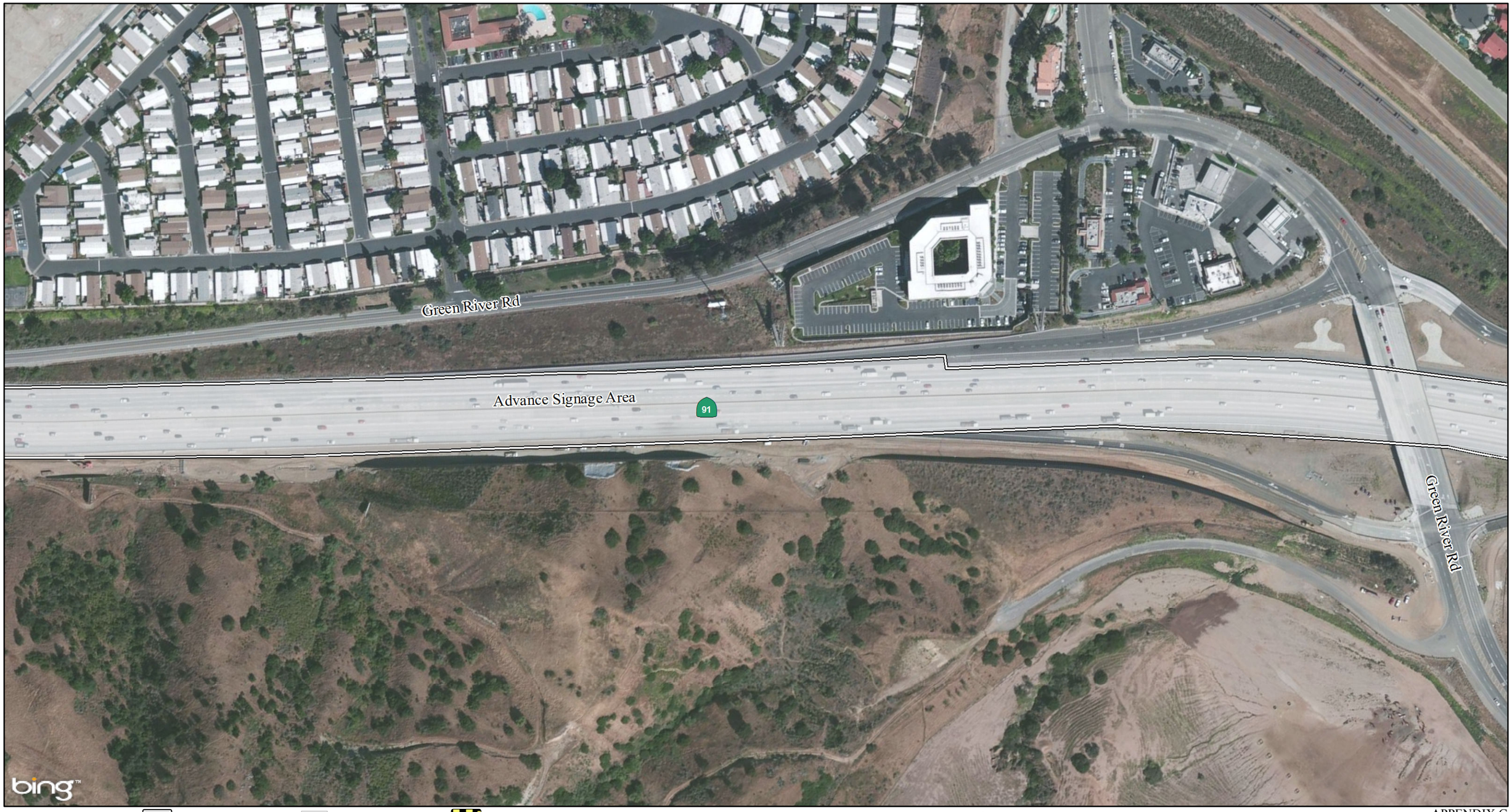
Biological Resources and Project Effects



Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
- Nonnative Grassland
- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

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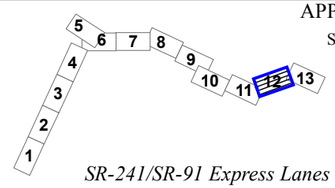
Note: There are no biological resource impacts in the Advance Signage area along SR-91.



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SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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Biological Resources and Project Effects

Biological Study Area

Plant Communities

- Bare Ground
- Chaparral
- Coastal Sage Scrub
- Developed
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- Oak Woodland
- Ruderal
- Permanent Impacts
- Temporary Impacts

Drainage Feature (with ID#)

CDFW Jurisdiction

USACE Jurisdiction

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FEET

SOURCE: Eagle Aerial (2011); USFWS (2011); RBF (12/2014)

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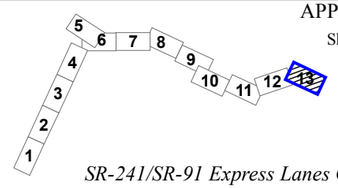

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SR-241/SR-91 Express Lanes Connector

Biological Resources and Project Effects